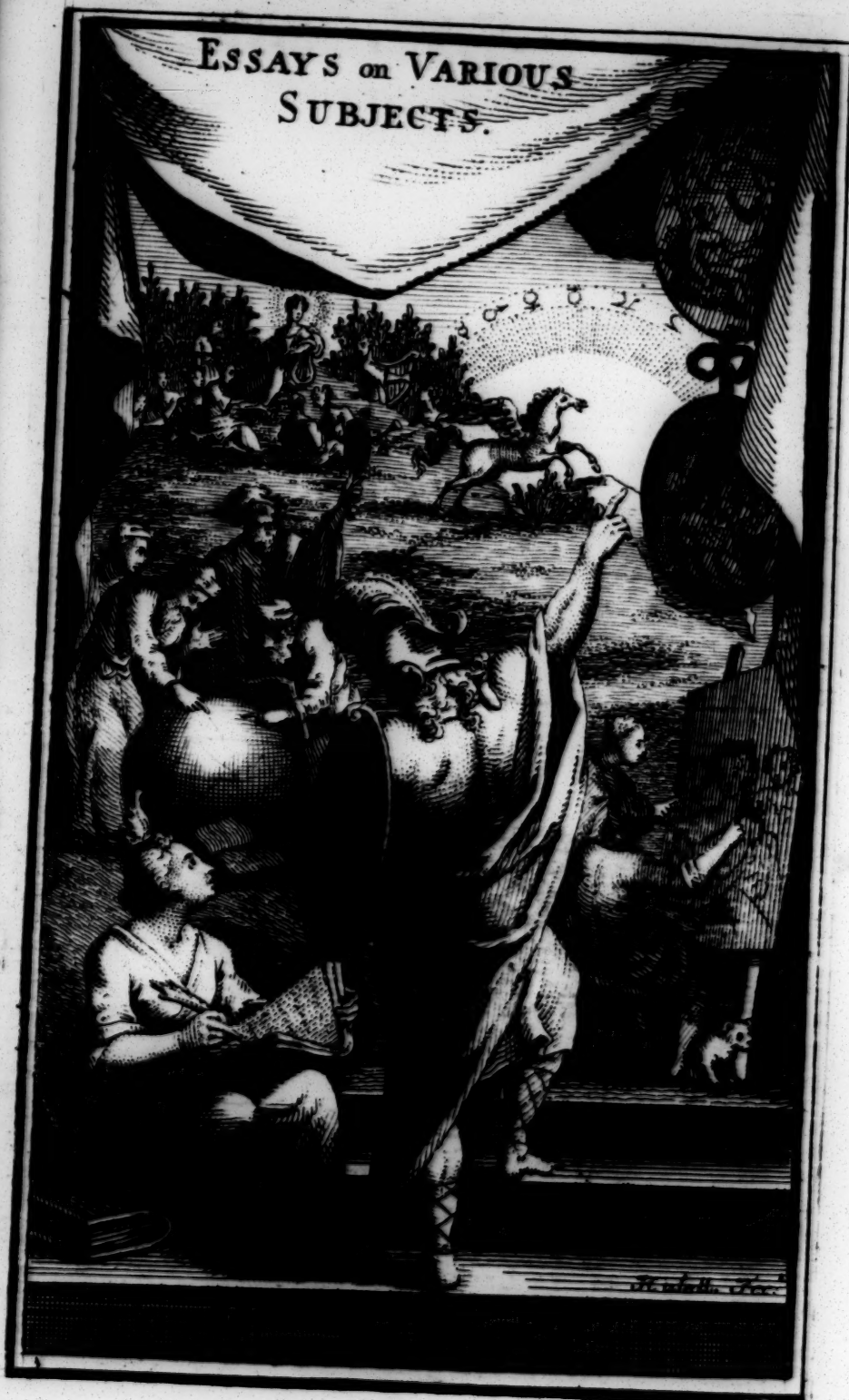


ESSAYS on VARIOUS
SUBJECTS.



ESSAYS

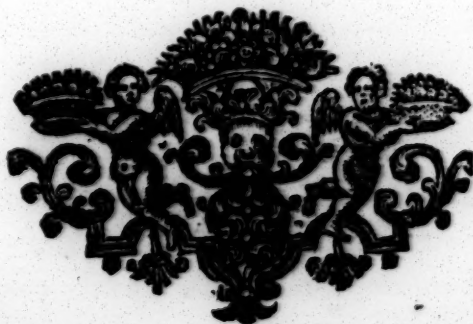
ON

Various SUBJECTS:

As they were publish'd

IN THE

Weekly Essay, or Middlesex Journal.



L O N D O N :

Printed by G. SMITH, in *Prince's-street, Spittlefields;*
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T H E
P R E F A C E.



It is but lately, since these *Essays* were publish'd at the Head of a Weekly Paper, which had for its Title, *The WEEKLY ESSAY, or MIDDLESEX JOURNAL*, and were intended to illustrate the Particulars offer'd in the Introduction, which was printed to the First Number, and now makes the latter Part of this Preface.

FROM the Opinion of several Gentlemen of Judgment and Learning, I flatter'd myself of such Success as commonly attends Useful Undertakings: But finding the reasonable Expectations as well of Them as myself frustrated, I judg'd it proper to suspend the Publication of more Numbers, till some other Opportunity should assure me of better Progress.

PERHAPS I may be asked, Why I could venture to republish these *Essays*, after they had once been rejected by the Publick? To which I answer, That the Weekly Papers were so far from being rejected by the

Publick, that the *Essays* therein contained would undoubtedly have render'd themselves acceptable to all Lovers of History and Natural Philosophy, had the Distribution and Reading of them not been obstructed by the sinister Designs of those who pretend to have it in their Power to amuse the Town with what they chuse themselves: And as the small Number disposed of was chiefly among my Friends and Acquaintance, I have been advised to offer those *Essays*, in a Compendious Pocket Volume, to the Perusal of the Publick; but especially to such Gentlemen and Ladies as may like the Plan, and perhaps already have, or would be willing to encourage the Continuation thereof, by becoming voluntary Subscribers, till their Number should be sufficient to support such an Undertaking against all the Attempts in Opposition to it; in which Case I should not fail to give entire Satisfaction: But without enlarging any more; the following will be sufficient to supply the Remainder of this Preface, it having been printed (as has been observed above) as an Introduction to N^o. I of the *Weekly Essay*, or *Middlesex Journal*; and is as follows:

“ **P**ERpetual disputes, either upon civil or
 “ ecclesiastical affairs, must, at last, grow
 “ tiresome and cloying: For this reason; it
 “ has been thought that a weekly Paper,
 “ wherein other subjects should be treated of,
 “ would (at least for the sake of its novelty)
 “ not be displeasing, and might afford a rea-
 “ sonable

The P R E F A C E.

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“ sonable refreshment to the Public. It is in
“ this view that this paper is undertaken to
“ be written. Here will be found abstracts
“ from scarce and valuable books, without
“ regard to the authors; points of History
“ clear’d or illustrated, without allusion to
“ the present times; The knowledge of Na-
“ ture, and Natural things, endeavour’d to
“ be made comprehensive, easy and familiar,
“ without pedantry and affectation. The
“ whole, without (what is grown too com-
“ mon) depreciating Christianity or railing
“ at the Government.

“ And, in order to make this work more
“ generally useful, and proper for the per-
“usal of all ranks of Men, those knotty and
“ difficult questions (the resolving of which
“ might probably please the learned, but that
“ might be a stumbling block to those who
“ are intirely unacquainted with these mat-
“ ters) shall be purposely avoided, and that
“ method follow’d, which may bring the
“ Reader to a true insight into things with
“ the least pains. A regular or complete
“ System either of this or that science is not
“ so much as pretended to. Such an under-
“ taking indeed might be of use to those
“ who intend to pursue these studies more
“ closely. But books are not wanted upon
“ those subjects for the instruction of profess’d
“ scholars. This therefore is only in favour
“ of those, whose thoughts have been chiefly
“ employ’d another way: Men of business,
“ who may look upon the improvement of
“ their understanding, as a more reasonable
“ recre-

vi *The* P R E F A C E.

“ recreation, than dabbling in religious or
“ political controversies; Men of leisure,
“ who may think some part of it not ill be-
“ stow'd in the pursuit of knowledge; La-
“ dies, who do not take ignorance to be a
“ necessary qualification of the fair sex, and
“ are of opinion it is not a greater diminu-
“ tion to the lustre of their eyes, to fix them
“ now and then upon what may serve to
“ adorn and embellish their minds, than upon
“ an opera-song or a pack of cards. To
“ such as these; too great a regularity wou'd
“ appear tiresome, and rather a toil than an
“ amusement. And tho' confusion shou'd
“ always be avoided, yet it must be own'd,
“ that nothing is so pleasing as a little variety;
“ so that in the course of this work, when
“ any particular branch of learning shall
“ have been treated of, the next thing to be
“ consider'd of will not always follow, but
“ the writer will be left at liberty either to
“ proceed, or to enter upon a new topic.

“ To sum up our design in a few words;
“ Whatever may be ornamental or beneficial
“ to mankind; whatever may serve to mend
“ the heart, store the memory with matter
“ of fact, agreeable or instructive; innocently
“ amuse the fancy, or cultivate and enlarge
“ the understanding, is intended to be the
“ subject of our enquiries in these *Weekly*
“ *Essays*. They will chiefly consist in obser-
“ vations upon ancient and modern Authors;
“ Literature and Philosophy; or those Arts
“ and Professions, whose end it is, to con-
“ tribute to the instruction or delight of
“ Society.

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N. B. Such Gentlemen and Ladies, that already have,
or are willing to encourage the Continuation of these
Essays, are desired to send their Names and Places of
Abode to the Printer thereof.





THE
WEEKLY ESSAY.

V O L. I.

N^o I. *Saturday, November 5, 1737.*

——— *Adbuc sub judice lis est.*

HOR.



IT is a trite and common, but well-grounded observation, that whatever is grown into a habit becomes, as it were, natural to us, and a part of our very being. By this means, we are apt to miss or feel the want of those things we are us'd to when they are taken from us. But whilst we possess them, be they ever so precious and valuable, we are subject to under-rate them, and to look upon them as things of course: Thus the invention of *Letters*, or art of *Writing*, by being so common amongst us, is so little taken notice of, that not only the inventor is forgotten, but even the nation or people, among which it was first found out, is scarce known or sought after. And yet, what more wonderful than that four and twenty characters, that bear no affinity, and have no resemblance with the sounds they represent, shou'd,

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by

by being differently plac'd, serve to convey all our ideas! It is the familiarity, contracted from our infancy with these characters, that has diminish'd or rather taken quite away that surprize they wou'd otherwise have created in our minds. But they have had a quite different effect upon those nations among whom they have been long unknown. The *Mexicans*, who before the conquest of their country by *Cortez* were utterly unacquainted with them, on their observing the *Spaniards* send their thoughts to one another on a slip of paper, were so amaz'd, that they concluded them to be celestial or infernal deities, or in plain *English*, gods or devils: And I remember to have read somewhere, that an Indian slave, being sent cross the country by an *European*, with a letter and a present to a friend of a basket of fruit, was so tempted by the beauty of it, that he cou'd not help making free with it. The friend, receiving the letter without the fruit, soon guess'd how things went, and did not fail in his answer to acquaint the Indian's master with the petty larceny; who immediately order'd his slave a sound drubbing. Upon this the poor fellow imagin'd that the letter was some intelligent mischief-making tell-tale being, plac'd as a spy over him by his watchful master; and he fully resolv'd to be more upon his guard on the like occasion. It was not long before the Indian was again dispatch'd; another basket, another paper spy. The way was long and tedious, the fruit still more alluring than the former time. The slave, thinking he cou'd chouse his troublesome companion the letter, hid it under a large stone, whilst he satisfy'd his appetite; and having securely eat his fill, took it up again, and continued his journey. But, what was his astonishment, when upon his return home another severe bastinado convinc'd him, in the most feeling manner, that notwithstanding his prudent caution all was discover'd? abash'd! amaz'd! he persuaded himself that he was fallen into the hands of wizzards, and that both master and correspondent dealt with the devil. For, pray?

was

was it possible words cou'd be express'd by characters, or thoughts convey'd in a bundle? That was above his conception.

However ludicrous or trifling this little story may appear to some people, it certainly serves to prove what was intended, the surprisingness of the art of writing. As for its use and excellency, they are too well known to be much insisted on. By writing, our ideas, which otherwise wou'd either die and perish with us, or be weaken'd and alter'd by tradition, are handed down from age to age, survive the most lasting monuments, and are preserv'd to the greatest length of time. By writing, trade and commerce is extended, and a correspondence kept up with the most distant countries; we converse with the greatest men of all nations and ages, calling them, in a manner, out of their graves, to inform and advise us. By writing, a man, as he sits by his fire-side, can be in company and hold a discourse with his friends and acquaintance in the four parts of the world; and a prince, without stepping out of his closet, can animate and give warmth to a commander that freezes under the Pole, and, in the same day, cheer another, that is fainting under the scorching heat of the Line. He delineates his thought, and in an instant, without giving himself any farther trouble, it crosses over sea and land, goes unknown thro' a thousand hands, and delivers his orders, and utters his intentions, to those that are thousands of miles distant. By writing, religion and morality, arts and sciences, works of humour and instruction, are propagated among mankind and transmitted to posterity. In short, it is the gate to knowledge, and in this view, an account of its original and invention will not, it is hop'd, be look'd upon as an ill or improper introduction to these *Weekly Essays*, chiefly intended to render more diffusive those benefits, for which we are so much indebted to this art.

Plato and after him *Tully* ascribe it to the Supreme Being, as judging it above the reach of human capacity;

city ; so astonishing it seem'd to them, that by the help of a few characters the sound of words shou'd be reduc'd to shape, and the cognizances of the ear become subject to the eye ! We shou'd needs acquiesce and agree to what is said by these great men, did they mean no more than that GOD is the first cause of this, or whatever else is great and good, or beneficial to mankind. But, if we may have leave to judge from experience, we shall find that for the invention of most things useful, some second cause has been constantly set to work by the supreme agent. Industry, prompted by Necessity, may be look'd upon as the mother of arts : Love of fame, or some other passion, might come in afterwards and lay claim to some share in the undertaking. And it is humbly presum'd to be out of dispute, that *man*, without any immediate inspiration, is the author of writing ; but what man ? is the question ? We are told by some indeed, tho' with what foundation I know not, that it was brought into *Assyria* by *Rhadamantus*, by *Memnon* into *Egypt*, by *Hercules* into *Phrygia*, and by *Carmenta* into *Italy* ; and no doubt, were an *Irish* or *Welsh-man* to assist at the debate, *St. Patrick* and *St. Taffy* wou'd bear a considerable part in the controversy.

The *Jewish Rabbies* tell us very gravely, among the rest of their learned *reveries*, that the *cloud*, as they call it, of *letters*, together with the *rainbow* and *Aaron's staff*, were created on the evening of the Sabbath. And one of these worthies has been so good as to inform the world, that *Adam* was the first *Rabbi*, as well as the first man ; and that he wrote a very clever book, being the history of the creation ; a work the most valuable of all for its antiquity, that wou'd have produc'd numbers of labour'd *folio-commentaries*, the loss of which can never be sufficiently lamented !

But to be serious. The only tolerable reason mention'd in favour of *Adam*, or indeed any of the *Antediluvians*, is this ; that it is not likely that men, abound.

abounding in leisure and blest'd with an extraordinary long life, shou'd not hit upon proper means to deliver down their inventions and instructions to posterity. But to one that considers these things rightly it will methinks rather appear, that their leisure must have been chiefly employ'd in things absolutely necessary, such as building, tilling, gardening, and the like. And their long life, together with their making use of the same language, and forming but one or several great families, that kept pretty much together, made the want of characters to communicate their thoughts, scarce perceivable; especially since oral tradition was so easy to be preserv'd amongst them thro' so small a number of generations. For during the space of 1651 years, there was but nine generations; and *Noah*, the youngest of the Patriarchs before the flood, might have seen and convers'd with *Enos*, *Adam's* grandson. So that we must go lower for our intended discovery. There are Authors that will have it that *Abraham*, others that *Moses*, or one of the *Hebrews*, is the inventor of this excellent art: but as there is not the least shadow for such a conjecture in Holy Writ, we must beg leave not to be of their opinion.

The *Affyrians* or *Babylonians* next lay claim to that honour. It is alledg'd, they were acquainted with *Astronomy* long before any other nation; a science they cou'd not well practice without the knowledge of letters; and it is farther urg'd that the astronomical observations, preserv'd by the *Chaldeans* at *Babylon*, and sent to *Aristotle* by *Callisthenes*, who accompany'd *Alexander the Great* in his conquest of *Affyria*, began so high as 1903 years before that expedition, that is, in the year of the world 1770, or 114 years after the flood. But for this, we have only *Simplicius* his word, which, in so doubtful a case, cannot so well be depended upon. Besides, among so learned a body as the *Chaldees*, figures and numbers alone, join'd with their instructions by word of mouth, were sufficient to preserve their observations.

tions. All them that have any notion of those sciences, that are nearly related to the Mathematics, very well know that they require less writing than any other; and I have been credibly inform'd that an *Englishman* well vers'd in those studies, without understanding one word of *French*, made himself master of L'Hopital's Conic Sections by the help of the schemes, before ever that book was translated.

It may be farther added, that upon a strict search it will be found, that the *Affyrians*, in general, were very little given to speculation. They were rather of a turbulent nature and military genius, bent upon spoils and conquest, and most commonly involv'd in civil commotions, war, and blood-shed. Their kings, the fondest of any of absolute sway, and seldom consulting the good of their subjects, following the example of their first predecessor and founder of their empire, *Nimrod* or *Ninus*, made their glory consist, rather in extending their limits and making a havock of their fellow-creatures, than in governing with justice or being the patrons of learning. Those among them, that had understanding and courage, employ'd both in a bad cause. The rest sunk in sloth and luxury, like a *Turkish* Sultan in his seraglio, spent their life in ease and pleasure; and if they encourag'd their Astronomers or *Magi* in the study of the heavens, this proceeded, either from a superstitious belief that they cou'd read in the stars the good or bad success of their undertakings, or from the political use they sometimes made of their predictions. Now, unless the advocates for the *Affyrians* have something stronger to advance on their side, they may throw up their brief and dismiss their clients.

Next come the *Phenicians*, usher'd in by a numerous croud of Greek and Latin Authors*, and among others *Lucan*; witness this beautiful passage in his *Pharsalia*.

* *Pliny, Q. Curtius, Critias*, quoted by *Ashenaut, Plutarch, &c.*
Phœ-

Phœnices primi, famæ si creditur, ausi
Mansuram rudibus vocem signare figuris.

Paraphras'd in this manner by the late ingenious
Mr. Rowe,

Phenicians first, if ancient fame be true,
The sacred mystery of Letters knew;
They first by sound in various lines design'd,
Express the meaning of the thinking mind;
The pow'r of words by figures rude convey'd,
And useful science everlasting made.

and render'd still more happily in *French* by *Brebeuf*;
and as his translation of these verses has been reckon'd by men of some taste to exceed *Lucan* himself,
I shall make bold to set it down here.

C'est de lui * que nous vient cet art ingenieux
De peindre la parole, & de parler aux yeux,
Et par les traits divers de figures tracées
Donner de la couleur & du corps aux pensées.

But without troubling the reader with needless quotations, I believe I may venture to affirm, that the most that can be prov'd from them, is that *Cadmus*, a *Phenician*, was the first that brought writing characters into *Greece*. Now, to conclude from thence that he was the inventor of them, is as childish an argument, as that of little master or miss wou'd be, were they to be positive that the original of Letters was owing to the purblind old woman in the court, because she taught them their horn-book and primer.

The last I shall mention (and I am afraid I have trespass'd too much already upon the reader's patience) are the *Egyptians*, from whom, as much as may be gather'd from the records of those ancient but fabulous times, all nations have borrow'd whatever is reckon'd agreeable or advantageous, either in public or private life.

* *Cadmus*.

That wise people, as it plainly appears both from prophane and sacred writers, * did not boast of their antiquity without foundation. By antiquity, I mean that they were the first, or at least one of the first, that incorporated or join'd in a great society for their mutual support and defence. The natural situation of the country they found themselves in, or made choice of, was extremely proper for such an undertaking. It was prodigiously fruitful; and the neighbourhood both of the *Red* and *Mediterranean* sea, the river *Nile*, that cross'd it, from south to north, in it's greatest length, as well as the artificial channels, that were dug on purpose to receive and distribute its waters, made all manner of commerce and intercourse very speedy and easy, excepting only the Isthmus of *Suez*, not at all difficult to be guarded; the two seas just mention'd, together with the desarts of *Lybia* and the *Ethiopian* sands, surrounded it on all sides, and secur'd it from any sudden invasion.

The overflowing of the *Nile*, which overturn'd the bounds and land-marks, in use among the *Egyptians*, in ruder ages, made it absolutely necessary for them to find out just and exact measures, in order to distinguish, each man, his own property or inheritance after the waters were runn'd off. These were the first beginnings of Geometry, that sure and unerring guide to most arts and sciences; and this, together with their living under an open and clear sky, in a flat champian country, where no hills nor woods intercepted the sight, soon brought them acquainted with Astronomy, in which they very early made great progress. And were this the place, it might be prov'd, that the *Chaldeans* in *Babylon* were colonies of the *Egyptians*, and † that they became famous in Astrology, having learnt it from the *Egyptian* priests; who in the beginning of the reign of *Nabonassar*, king of

* *Pentateuch*, *Diodorus Siculus*, *Pausanias*. &c. † *Diod. Sic.* l. i. p. 51. *Joseph. Antiq.* l. i. 4.

Babylon, about which time the *Ethiopians* under *Sabacon* invaded *Egypt*, fled from him to *Babylon*, carried thither the *Egyptian* year of 365 days, and founded the *Æra* of *Nabonassar*, dating it from the first year of that king's reign. * Add to this, the wisdom of their laws, and the excellent frame of their government, and you will not be surpriz'd if they were some centuries before hand, in the knowledge of all the arts of peace. Witness only, to omit a thousand other instances, those stupendous pyramids, which are still to this day, equally the wonder of every gazing traveller, and of the most distinguishing and critical observer.

Their great application to learning soon put them upon finding out some characters to preserve it. The first they made use of, as the most obvious and natural, were *Hieroglyphics*, or such figures of birds, beasts, and other sensible things as they intended to speak of, or that did bear some resemblance with the thought they had a mind to express. This, no doubt, was at the same time, not only a very difficult and laborious, but a very imperfect way. For first, in order to write, a man must have had a tolerable notion of drawing. Then, for a discourse of any length, not to mention the impossibility of drawing the little connexions of speech, or of giving the picture of a conjunction or an adverb, a vast number of characters or various representations must needs have been requisite, in a language in which so many different subjects were to be treated of. So that to make one's self *master of reading* among them, must have taken up a great deal of time; and it is to be suppos'd that it was then with them, as it is at present with the *Chinese*, where a man, that knows all his Letters, is reckon'd to have more than a moderate share of learning.

* *Newton's Chronol.* p. 25.

But as all arts are improv'd and brought to perfection by time, so it is easy to imagine was this of writing. Experience soon taught the *Egyptians* the inconveniency of their hieroglyphics, and patience and labour the use of characters, both less numerous, and more plain and easy. So their hieroglyphics were set aside, save only among the priests, who still continued to hide under them the mysteries or rather absurdities of their religion. This may be drawn, partly from history, partly from conjecture; of the probability whereof we must leave the judgment to the reader. What seems to strengthen what has been advanc'd upon this head is, that the ancient *Egyptian* Letters were not unlike some of the favourite hieroglyphics they at first made use of, and one may distinguish in the shape of some of these letters something that resembles the head of an Ibis, an Ox, a Hawk, and other consecrated animals of *Egypt*. Now, since the *Egyptians* were undoubtedly the first that made use of hieroglyphics, or emblematical representations; since that their application to learning and their fondness to preserve the history of their country, made them very sensible of the want of more easy and more compleat characters, is it not very reasonable to suppose them to be the true inventors of such characters, that is, Letters?

The *Hebrews* afterwards coming into *Egypt*, where they remain'd fixt and settled for some generations, had during so long a time opportunities enough of improving themselves in most of those arts that flourish'd there, and *Moses*, in particular, *was learned in all the wisdom of the Egyptians* *. So that no question can be made of their attaining so useful and necessary a knowledge as that of Letters, the first of all, and as an introduction to the rest. It is very remarkable that there are not the least footsteps of

* *Acts*, VII. 22.

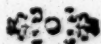
writing among the *Jews*, nor the least hint about it in Holy Writ, till the time of *Moses*, that is, till their having dwelt some considerable time in *Egypt*. For the book of the wars of God, quoted in Scripture, was undoubtedly written during their sojourning in that country, and probably describ'd some military expedition or exploit, belonging to that part of history, of which there is no account given in Holy Writ, and which includes that space of time, spent between the death of *Joseph* and the birth of *Moses*. Had *Adam*, had *Noah*, had *Abraham*, had the inhabitants of *Chaldea* or *Assyria*, where that patriarch was born and educated, discover'd the art of writing; wou'd not some mention be made of it in Scripture before *Moses*? Wou'd the wills and prophecies of the patriarchs have been by word of mouth only? their history and religion deliver'd down only by tradirion? their contracts and alliances confirm'd and ratify'd only by heaps of stone? No monumental inscriptions to preserve the memory of the dead, or to ascertain the truth of past events! What? had they been acquainted with writing, wou'd they not have set down some of the most memorable circumstances of their own history, some of the most remarkable events in their own time? Wou'd not *Moses* have refer'd to such ancient, to such authentic memoirs? Yes surely! and their not having done it is a proof that it was not in their power. From these considerations, I think it plainly appears, that the *Egyptians* were the masters of the *Hebrews* (who by the by were wholly employ'd before in tending their flocks) in most arts, but especially, in this of writing.

The *Israelites*, being put in possession of the Land of *Canaan* or *Palestine*, might communicate it to their nearest neighbours, the *Phenicians* or *Tyrians*; unless we suppose that this people, who drove the most considerable trade of any at that time, and sent ships to all parts of the then known world, learnt it themselves of the *Egyptians*, from whom they were

at a very inconsiderable distance, especially by sea, and with whom, for some time, they were very closely united; these latter being thought to have given them some port or harbour upon the Red sea, to enable them the better to carry on their traffic. Let that be as it will, the *Phenicians*, together with their commerce, carry'd Letters into *Greece*. Hence the celebrated story of *Cadmus*, whom the poets have dress'd up in their fictions, as a dragon-killing romantic hero; tho' ten to one, was the truth well known, he wou'd prove to be the master of some *Phenician* merchantman, or at best, the captain of a *Tyrian* privateer. The *Greek* colonies in *Italy* taught it the *Romans*, and from these three nations, I mean, the *Phenicians*, *Greeks*, and *Romans*, at different times and in different parts, the rest of mankind has learnt the use of Letters.

Now, if we will but take the trouble to consider with some attention what has been said upon this subject, it will be easily seen that those, who were the first civilis'd and cultivated with success the liberal arts, were also the first that discover'd that, without which the rest of their discoveries cou'd hardly have been preserv'd, or imparted to others; that from rude beginnings they brought it at last to perfection; and that both the people chosen to maintain and, propagate religion and morality intire and uncorrupted, and that, whose extensive trade and universal correspondence made the fittest to spread and diffuse every where so good an invention, were the first that receiv'd it at the spring head, or from the inventors themselves.

These, I presume, will be found, upon the strictest inquiry, to be the occasional causes Providence has been pleas'd to make use of, to commit so useful an art and bestow so great, so inestimable a blessing upon human-kind.





N^o 2. Saturday, November 12, 1737.

—— *Fluviumque liquentem.*

VIRGIL.

AMONG those several discoveries for which we are indebted to the ancients, and that conduce to much to the pleasures and conveniences of life, there are few more valuable than the invention of Glass. Its beauty and the different numberless uses it can be put to; its fusibility which makes it so easy to be work'd upon, and capable of so many various shapes and mouldings, but chiefly its transparency, are so well known and so remarkable, that it wou'd be needless to dwell upon them. I may perhaps, some time or other, endeavour to give a particular account of the manner in which it is made, and trace this part of our manufactures in all its branches, from its first dross and melting, to its receiving a new being, and, under the figure of a bright polish'd pier-glass, adorning the mansions of the fair, and the palaces of the great. At present, I shall confine my self to the chief uses, that were made of it by the ancients; after having first said a word or two of its discovery, as we find it in *Pliny*.

If we may credit this author, it is intirely owing to chance. Some merchants, coming thro' *Phenicia* with their cargo of nitre, being about dressing their victuals upon the borders of the river *Belus*, and finding no stones to raise their trevets, it came into their head to put under them, instead of stones, lumps

lumps of nitre. This presently took fire, mixt and incorporated with the sand, and ran into little streams of a transparent liquor, which soon after, coming to settle or congeal, directed them to the method of making Glais, which has since been brought to a much greater degree of perfection. This discovery may be plac'd about a thousand years before the birth of Christ.

In a book, falsely attributed to *St. Clement*, mention is made of glais columns of a prodigious height and size. * But the most famous piece of workmanship, whereof Glais may be look'd upon as the chief material, is the celebrated theatre of *Scaurus*, who during his *edile-ship*, caus'd to be built the most magnificent structure that was ever rais'd by hand of man. This was a theatre, the *scene*, or stage whereof, was three stories high, and adorn'd with 360 columns. The first story was intirely of marble, the second all over incrustrated or lin'd with a *glass mosaic*; a piece of finery, till then, unknown, and never imitated since. The third and last was a gilt wainscot. The columns of the first story were 38 foot in height. Three thousand brazen statues, plac'd between the pillars, made this stage the most sumptuous and noble, as well as the most costly in the world.

Besides this grand and unusual manner of employing Glais, the ancients, as well as the moderns, made use of it in common life: It serv'd for a *Greek* or *Roman* beau to admire himself in, as well as for one of a later date. The *Roman* matrons practis'd before it the same arts as the *English* Ladies, and took as much pains to extend their conquests by beauty, as their husbands by the sword. The use of looking-glasses may be chiefly gather'd from *Pliny*, † who informs us, that in ancient times no city was in so high

* *Recogn. S. Clement. VII. 13.*

† *Hist. Nat. XXXVI. 25.*

repute, as that of *Sidon*, for the art of making Glafs; and that, at this place, was first discover'd the secret of making looking-glasses. And some lines lower, speaking of black Glafs made in imitation of jet, he tells us, that some of these were plac'd among the common clear pier-glasses, on purpose to disappoint those that came to admire themselves; who, instead of their own dear person, were presented with nothing but an imperfect shadow; for such it seems was the effect produc'd by these dark looking-glasses.

We learn from the same author that glass was not one of the least ornaments of their side-boards, and that under the reign of *Nero*, were first made jars and cups of white Glafs of great transparency, perfectly imitating rock chrystal. This kind of ware, chiefly imported from *Egypt* and especially from *Alexandria*, was very much valued at *Rome*, and bought at a very dear price by the great men there.

Glass found a place even in the libraries of the ancients, one of the chief ornaments whereof was the glass sphere, or celestial globe, invented by *Archimedes*, that serv'd to represent the apparent motion of the heavens. And it is not improbable, notwithstanding the common opinion is against it, that the use of telescopes, or perspective glasses, was not unknown to them. As a proof of this, is quoted the following piece of history; that a king of *Egypt*, one of the *Ptolemies*, had built a tower, or observatory, in the same island, where had been rais'd the light-house, or pharoah of *Alexandria*: And that from the top of this tower cou'd be discover'd, at the distance of some hundred miles, the enemy's ships, if at any time they had attempted to make a descent upon the coast. Now, this wou'd be quite impracticable without the help of telescopes.

But Glass was not wholly appropriated to these speculative or serious employments. It was made use of for bodily sports and exercises, as in the game of
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the glass-ball, *vitrea pila*. Those, who diverted themselves with this brittle plaything, held both their hands up, one to catch the ball that was thrown to them, and the other to toss it back again. So that all the merit of this game consisted in being very alert and ready, lest this ball shou'd fall to the ground; for this prov'd the lots of the game: The inventor whereof was a *Roman*, one *Ursus Togatus*, whose name it was thought worth while to hand down to posterity by an inscription, which is to be found in *Gruterus* his collection. The game of chess is so universally and so justly admir'd, that I shall not scruple to observe, that according to the best authors, the chess-men the *Romans* play'd with were chiefly of Glass.

The art of painting upon Glass that flourish'd amongst us some centuries ago, and of which there are still very fine and beautiful remains extant upon the windows of some of our old chapels and cathedrals, was not unknown to the ancients. They painted it in all manner of colours, and thereby perfectly imitated most kinds of precious stones, as *Pliny* somewhere informs us in express terms.

We have hitherto seen, that Glass had a share in the recreations of the ancients, that it help'd them to set off their persons, and to adorn their houses and side-boards, that it was instrumental in improving their studies, and was of service in most circumstances in life. But its uses do not end here; it follow'd them to the grave, and both among the heathens and primitive christians, made part of the funeral solemnities. Few ancient sepulchres have been open'd, but what were found in them lachrymal urns, or small vessels, generally of Glass, wherein, as it is suppos'd, were contain'd the tears shed by the *Romans* at the departure of their friends and relations: These they were very careful of depositing in the same grave with the dead. After the establishment of Christianity, there was no farther use for these urns, altho' glass-

glafs-phials are sometimes to be found in the tombs of martyrs. But in these it is pretended was collected the blood, they had spilt, in asserting the truth of the Christian faith.

As for glafs windows, such as ours are at present, we may conclude from their being mention'd by St. *Jerome*, that they were in use in the fifth century. Before that time, the *Romans* made their windows, and the glasses of their litters, of what they call'd *lapis specularis*; about which the learned are very much divided in their opinions. Without entering into a dispute upon this subject, that wou'd afford but little pleasure and less instruction, it will be sufficient to observe, that this *lapis specularis* was most probably that kind of stone, call'd *Talc* or *Isinglass*; not the common sort, that is to be found in most quarries, but that which is perfectly white and transparent, and that some parts of *Muscovy* abound with. *Seneca* speaks of these kind of windows, as of a thing of long standing in his time; from whence it may be presum'd that they had been in fashion, before the overthrow of the common-wealth.

It will perhaps be expected that something shou'd be said here concerning the *malleability* of Glafs, mention'd by some of the ancients. By saying that Glafs is *malleable*, it is meant that it is capable of being wrought into shape with a hammer, like gold, silver, brass, and other metals. But, as this is contradictory to the principles of natural philosophy, so, it may be look'd upon, as one of those fabulous stories, that men of more reading than judgment have impos'd upon the world. There is nothing to be found about it in any author of an older date than *Pliny*. *Dio. Cassius*, and several others, have only copied after him, each adding some new circumstance of his own invention. So that indeed what they advance can have no weight. They are only, if I may say it, the *echoes* of *Pliny*, who himself does not disown that

that this was only a vulgar rumor, that had little or no foundation. As for the story, concerning it, related by *Petronius*, that surely cannot be thought to deserve any credit, for the whole performance of that pleasing lively author, what is it, but a satyrical romance? Besides, in whose mouth does he put this story? why; in that of *Trimalchio*, the master of the feast, an ignorant blundering coxcomb, who had already been entertaining, over his cups, a drunken crew of fawning parasites and credulous boobies, with the greatest absurdities imaginable; such as telling them, that *Corinthian* brass was first discover'd by *Hannibal*; a cunning fellow, says he, who upon taking *Ilium* made a large bonfire, in which were thrown, by his order, all the statues of brass, gold, and silver, that were to be found in this great city. Of all these metals thus mixt and melted down together, the brassiers made pots, pans, and little images. This gave birth to *Corinthian* brass, one out of all, neither that, nor t'other.

Thus far *Trimalchio*, an upstart rich rogue, whose awkward pretensions to learning, *Petronius*, who perhaps had *Nero* himself in his eye, or some of that emperor's favourite bonds-men, ridicules with a good deal of humour. He then makes him go on with his story concerning the *malleability* of *Glass*, which, as it has been seriously quoted by some very grave authors, I shall venture to set down here.

There was, continues *Trimalchio*, an artist, who made glass cups of so great a compactness, that they cou'd no more be broke, than if they had been of gold or silver. Now, having finish'd a most beautiful piece of workmanship of this kind, which he judg'd none under the emperor to be worthy of, at his own request, he was admitted with his gift, into the presence. The beauty of it was admir'd, the skill of the artist commended,
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and the respect of the donor graciously accepted. He, that he might turn the admiration of the spectators into down-right amazement, and obtain a still greater share in his sovereign's favour, took the cup out of the emperor's hand, and threw it down upon the pavement, with so much force, as wou'd have broken the thickest and strongest of brass-metals. At this so sudden a flight, the emperor was no less shock'd than astonish'd. The fellow took up the cup which was not broken, but bruise'd; as if the substance of brass had put on the appearance of glass. Then pulling a hammer out of his bosom, he fell to work upon the glass, and with repeated blows mended it, with as much exactness, as if he had only been repairing the bruises of a common brass kettle. This done, he imagin'd he had reach'd the highest heavens, in that his deserts would be rewarded by the compliments of the whole court, and the particular regard of the prince himself. But it happen'd quite otherwise; for the emperor ask'd him, if any other knew his secret; and upon his answering in the negative, he presently order'd his head to be struck off; saying, that were once such a secret divulged, gold and silver would grow as common as dirt.

I shall conclude this paper with observing for the sake of those among my readers, who are not so well vers'd in history, that that noble mixture abovemention'd, so celebrated among the ancients by the name of *Corinthian* brass, was owing to the following cause.

Mummius a Roman consul, having besieg'd *Corinth*, one of the most flourishing cities of *Greece*, and taken it by storm, the best part of it was consum'd by fire, either design'd or accidental. Some time after, among the rubbish was found great quantities of this new unknown metal, produced, as it was thought, by the violence of the flames, which had melted, and thoroughly mixt vast num-

bers of brass and silver statues and utensils, in which this famous city very much abounded. This happened in the third year of the 158th Olympiad, 145 years before the birth of *Christ*.



N^o 3. *Saturday, November 19, 1737.*

————— *Mirum unde, sed olim
Hic honor alitibus.*

STATIUS.

NOtwithstanding the propagation of true religion and true knowledge amongst us, that has banish'd a good many of those idle fears concerning witches, spirits, and the like imaginary beings; there still remains a craving superstitious kind of desire of prying into futurity. This, as much an abuse as it is, is however so far serviceable to society, as to furnish a comfortable livelihood to those retailers in divination, who otherwise would probably be, literally speaking, picking their neighbours pockets, or infesting the highways, to the great terror of his majesty's subjects. As for those voluntary bubbles, who suffer themselves to be impos'd upon by such ignorant and profligate pretenders to prophecy, I cannot help looking upon them with a mixture of scorn and pity, when I see them prostitute their faith and reason in so shameful a manner.

But since there are such people in this enlightned age, it is no great wonder that the ancients, who, tho' they had carry'd to the highest pitch most practical

practical arts and sciences, were nevertheless involv'd in the darkeſt ignorance in relation to religion and philoſophy, ſhou'd blindly truſt their *Au-gurs* and ſoothſayers. It is true, they carry'd this ſo far, that the wiſeſt among them were determin'd by the croaking of a crow, or the manner of flying of ſome ſilly fowl, in things of the greateſt moment, and matters of the utmoſt conſequence. An honeſt citizen cou'd not make his will becauſe he had ſeen a black dog, nor a bridegroom careſs his bride becauſe he had heard the ſqueaking of a weazel. The omiſſion of the leaſt ceremony, in inſpecting a flight of birds, was deem'd ſufficient for a conſul to lay down his office; and a general of the greateſt experience and reputation did not dare to lead the braveſt and beſt diſciplin'd ſoldiers to battle, if the conſecrated chickens happen'd to be troubled with the pip, or want a ſtomach to their barley. This maſter-piece of juggling was manag'd by the prieſts, ſupported and countenanced for reaſons of ſtate by the legiſlature, and thro' fear conniv'd at, or at leaſt not publickly diſavow'd, by philoſophers. There is ſomething ſo odd in this ſuperſtition, that I imagine an inquiry into the birth and riſe of it will be no bad ſubject for this week's paper.

The *Romans*, who made ſo great a uſe of *Au-gury* (for by this name was call'd this art or ſcience of foretelling future events by the feeding, flying or ſinging of birds) were not the inventors. It can be prov'd from their own hiſtory, that they had learnt it from the *Tuſcans*, or inhabitants of *Etruria*; whither, as ſoon as they were acquainted with the rudiments of this art, they made it their practice to ſend ſix patricians youths, or young noblemen, to be early inſtructed in the ſecrets and principles of it. The invention is aſcrib'd by the *Tuſcans* themſelves to *Tages*, a kind of demi-god, of whom they tell an odd kind of
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of story. That he was found sleeping under a clod of earth, that was accidentally turn'd up by a plough-share.

Had one a mind to humour those, that are for discovering mysteries and allegories in all ancient fictions, even the most absurd; it wou'd be no very hard task to find a proper moral couch'd under this fable. The knowledge of heavenly things is not to be obtain'd by superficial attempts; the difficulties, that attend it, are represented by the clods of earth; the pains and labour, requisite to overcome them by the plough, drawn by the patient ox; and divine knowledge itself, by the sleeping hidden demi-god. An adept in this way wou'd certainly find out here a great many under-truths, subordinate to this general one. But those are things too deep and profound for me to meddle with.

Those that place as high as they possibly can, the original of all things whatever, go back as far as *Adam* for this, as well as for the art of writing. The first man, say they, was perfectly well acquainted with all sorts of creatures, and surely well understood their language; he reasoning with them, and they with him. They add, that from father to son, it came down to *Noah*, a mighty astrologer in their opinion, who when he sent forth the raven and dove out of the ark did this, no doubt, according to the exact rules of *ornithomantia*, or bird-divination; from *Noah* to *Ham*, famous for his skill in the occult sciences, and known all over the world under the various names of *Saturn*, *Pan*, and *Zoroaster*; and lastly, from *Ham* to the celebrated *Tages*, who as they tell us, was his great grandson, otherwise call'd *Maloth*, by whose channel this useful and diffusive science, like a fruitful river, spread itself all over *Europe*. So far the authentic memoirs of the reverend *Rabbies*.

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However, as an undeniable proof of the great antiquity of this superstitious fraud, it may be urg'd that it is forbidden and condemn'd in scripture. For we read among the names of other impostors and deluders of the chosen people, that of the *bird-diviner* or *Augur*. For by this word, most interpreters have agreed to render the word *menachess* ^b in the original *Hebrew*. And altho' the word *nachass* ^c from which this is deriv'd does not signify a *bird*, but a *serpent*, this translation may still be depended upon: For, in divination, there was a promiscuous use both of serpents and birds; and the Latin name of *Augur*, as well as that which answers to it in *Greek* ^d, was equally apply'd to both these kind of presages.

But upon what foundation this strange prepossession was built, is not very easy to determine. Had the masters of this art been content to assert, that birds, as well as other creatures, have a kind of language of their own, or some manner of signs, whereby they impart, to one another, such things as may serve for the propagation of their species, and their respective well being; this indeed might deserve some credit, and might be confirm'd and justify'd by numbers of facts and experiments, well known to those who have studied nature. But to pretend that they speak to us, that they advise, threaten or encourage us, to listen to them, as to *the organ of the gods* (to use an expression of one of these gentlemen ^e; to look upon them as prophets and living oracles, answering precisely the very thoughts of those who consulted them; this is really such a childish extravagant notion, that one can hardly imagine mankind cou'd have been so long infatuated with it.

(a) *Deuteron.* XVIII. 10. (b) כִּוְּרֵשׁ *Sept.* *κρυπτισμους*,
 (c) נָחַשׁ. (d) *craves.* (e) *Rhodig.* VIII. 12.

Those among the ancients who have endeavour'd to give some reason for it, differ very much about the matter. Some of them say it was owing to an occult quality, or peculiar instinct, birds were endow'd with by the author of nature. Others believing the *Metempsychosis* or translation of the soul out of the body of a man into that of a brute, look'd upon these and most other creatures as having rational faculties, or as men who had only lost their shape. But most were of opinion, that the feather'd kinds soaring far above the earth, the innocency or harmlessness of their lives, the pureness of the air they breath'd, their nearness or proximity to the heavens, gave them a more subtle sensation, and enabled them to penetrate much farther than men into future events.

Seu purior axis

Amotumque nefas & rarum infistere terris
Vera docent. ——— f

Those, who spoke more reasonably upon this subject^s, fairly own'd that these pretended prophets, like most others, went on prophecying, without understanding or knowing what they were about; that they were only *brute instruments* in the hands of the supreme being, who guided their flights and other motions in so sure a manner, that those, who consider'd them with due attention, might from thence draw unerring rules, for the future conduct of their lives, in what circumstance soever.

But, of all ancient authors, *Tully* is the only one, who has deliver'd himself upon this subject in a free, open, and candid manner: And of all others, none surely was so well qualify'd as him-

(f) *Stat. Theb.* (g) *Macrob.* in somn. Scip. l. 19. *Am. Marcel.* l. 21. initio.

self to inform us of the true state of the question. As he had been chosen into the College of *Augurs*, he, as one of the fraternity, had been let into their most hidden secrets. He had numberless times been present at the several experiments daily made, both in regard to public and private affairs. He had had all opportunities imaginable of getting a full and exact insight into this science; and that he was a complete master of it appears from his two books *de Divinatione*; wherein nothing is wanting that can be alledg'd either for or against it. In the first book, his brother *Quintus* is introduced, as the advocate of the cause, and one fully persuaded of the truth of it.

He forgets nothing as may serve to authorize Augury. Antiquity, tradition, revelation, universal use, examples, all is brought in; till, at last, being press'd by the *Epicureans* to establish a natural and solid connexion between the motions of birds and the inductions drawn from thence, he frankly owns his ignorance, insisting only upon matters of fact, and that this science, like Physic, was founded upon repeated experiments, where reason had little or no share.

But the most entertaining part is that, which *Tully* has taken upon himself in the second book; where, confuting his brother, he makes a jest of the whole profession, and by the most convincing reasons, proves to a demonstration, how easily the little fallacies of this art might be detected; its uselessness, its falsity, its contrarieties, its impossibility. But we will wave his arguments, least they shou'd lead us too far, and conclude by two considerations, wherein, it is presum'd, will be comprehended the most probable causes that can be assign'd for this strange superstition.

Every one knows, that formerly among the ancients, and even to this day among the moderns (witness the Jury that not long since toss'd up on

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which

which side they shou'd give their verdict) the most usual way, to determine things of a dubious or hazardous nature, was a kind of appeal to fate, by casting of lots, or some such device. Those of a more lively disposition, that they might the sooner get rid of their uncertainty, made use of the first thing that came in their way, as a straw or a pair of dice. But those, who were more soberly and gravely inclin'd, put a more solemn face upon the matter, and proceeded with more formality and circumspection. They began by laying their case before the gods, humbly requesting that they wou'd vouchsafe to inform them, which side of the question they shou'd chuse. And as, if the gods had not been able to find out sufficient means to explain their will thereupon, they themselves took the liberty of prescribing to them some certain signs, of their own invention, which they fondly imagin'd they might look upon as good or bad omens. This was a correspondence carry'd on between god and man, by a kind of cypher, of which the inquirer alone had the key, and birds and beasts were the characters. So, that in their principles, the birds, of themselves, were of no significancy: The whole depended upon the intention and conventions of the petitioner. This I think clearly appears from the following form of prayer made use of upon such an occasion. The *Augur* addresses himself to *Jupiter*.

*Si datur & duris sedet hæc sententia parcis,
Signa feras, lævæque tones, tunc omnis in astris
Consonet arcana volucris bona murmura lingua
Si prohibes, hic nocte moras, dextrisque profundum
Alitibus prætexe diem ——— **

* Stat. Theb. III. v. 391.

" Oh! if our prayer be granted, give the sign
 " Almighty Jove! by thundering on our left:
 " And let auspicious birds with clangour fill
 " The spacious vault of heaven. But if Fate
 " Forbids; no more delay! But on our right
 " Darken the welkin with the feather'd kind.

Moreover, what plainly proves, that at first the meaning or signification of these signs was purely arbitrary, is that it was different in different countries, and that those birds, that were look'd upon as auspicious or favourable in one place, in another, quite the contrary, were taken to be ominous. And it is *Tully's* * observation, that in *Italy*, it was a good sign if the bird flew to the left, in *Greece*, to the right. Men, considering themselves as being of the same country, or as subjects, children, or disciples, were insensibly accusom'd to regard or shun, as birds of good or bad omen, those, who upon different occasions, had happily or unhappily determin'd the resolutions of their fellow-citizens, kings, fathers, or teachers. This kind of apishness, or, to call it by a better name, love of imitation, is in our very blood, and in the nature of man.

As for those conventions, in which some were so bold as to prescribe to the gods in what manner they shou'd reveal themselves; from something like them in holy writ, they seem to be very ancient. *Ask thee a sign of the Lord thy God*, † is an order to *Abaz*, king of *Judab*, who was hesitating upon what he was to do, and we have another example of it, still more specify'd, in *Elihezer*, *Abraham's* servant, who having been sent by his master to fetch a wife for *Isaac*, and being near the appointed place, sat down by a well, where he

* - Lib. 2. de Divin. † *Isaiah* VII. 11.

thought the inhabitants of the place wou'd come for water, and pray'd to God, that she, who shou'd offer him water for himself and his camels, shou'd be the destin'd bride of his master's son. And all this happen'd just as he had desir'd*.

But to this may be added a kind of physical cause. Every body knows that the inhabitants of the air are much more affected by its various changes than any other creatures, having receiv'd from their divine author organs of the nicest make, whereby they are made sensible of these alterations, at their first approach or beginning. This they seem to declare on all occasions, either by their voice, their manner of flying, or by some difference in their aspect or altitude. And this agrees with the uniform observations of all naturalists old and new.

Upon this supposition, is it not easy to conceive, that the ancients, while in their first simplicity, especially when the temperature of the air might considerably help or annoy the growth of what they planted or sow'd, took the same notice of these creatures, as we do of our barometers or weather-glasses; in order to make a right use of the present, and provide against the time to come. That nevertheless, as this study did not equally suit every climate, or every profession, those that particularly applied themselves to it, and had gain'd a reputation by this kind of prophecy, seeing people eagerly flocking from all parts to consult them, thought themselves confin'd in too narrow limits, which they endeavour'd to extend at the expence of their honesty, by a principle of quackery, which is but too common in all conditions of life. So taking advantage of the prepossession, simplicity, and curiosity of those times, they were at no great

* *Genesis* XXIV.

pains, to make the good folks believe, that their knowledge did reach much farther than only rain or sun-shine; and that the birds, whose language they feign'd to understand, did inform them of all future events. This was wink'd at by men of sense, and of such an imposture *Lucian* has demonstrated not only the possibility but the reality in his *false-prophet*.

To these two causes, either jointly or separately, may be ascrib'd this pretended science, harmless and innocent enough in the beginning, but that afterwards, thro' the wickedness of bold pretenders, dwindled into a mixture of deceit and superstition, and serv'd to hide or advance the designs of aspiring men, crafty priests, and tyrannical princes.



N^o 4. *Saturday, November 26, 1737.*

Non fingendum, non excogitandum, sed investigandum, quid natura ferat agatve?

BACON.

AS there are subjects in natural philosophy that have been examin'd and treated of by most of those who have improv'd that branch of knowledge, so there are others, which either by chance, from their minuteness, or from their usefulness not being as yet found out, have been neglected, or at least, but slightly taken notice of. Such is *Electricity*, which has long 'scap'd undistinguish'd; but at present, it seems to come into fashion, and to deserve the attention of the nicest observers.

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It has been known, time out of mind, that yellow amber, after it has been well rubb'd, attracts straws, and other light bodies, placed at a small distance from it. This power or virtue has been call'd *Electricity* from the Greek or Latin name of amber. Some account of it will not, it is hop'd, be unacceptable to the curious reader.

Electricity is a property of several parts of matter, which consists in attracting light bodies of all kinds, placed at a certain distance from the electric or attractive body, after it has been rubb'd with linnen, paper, cloth, or even with one's hand.

The name given to this property proves that it was first discover'd in amber, in which it is presently perceiv'd. But there are other parts of matter, in which it is no less, and some in which it is by far more discernable.

Among those who have shewn the most understanding in treating upon this subject, and whose exactness may chiefly be rely'd on, *Gilbert* * deserves to be mention'd. He has added to the number of *electric* bodies several in which this virtue was not known to reside. As there are some in which it acts but weakly, in order to make it more sensibly appear, he has made use of a needle, suspended upon a *pivot* or *axis*. An electric body, being brought near one of the ends of this needle, will attract it, more or less, according to the force of its electricity. He has discover'd by this means, that not only amber and jet have this property, but also most precious stones, such as diamonds, sapphirs, rubies, opals, amethysts, and chrystal. And it is to be found in glass, sulphur, mastic, &c.

He observes that all electric bodies have no virtue, unless they be rubb'd; neither is it sufficient that they shou'd be heated, either by the fire, the

* de Magnete II. 2.

fun, or otherwise. He adds several other observations upon the alteration caus'd by the interposition of different bodies.

Some time after, *Otto Guerike* try'd upon a globe of sulphur several experiments, which are to be found in the collection of experiments at *Magdebourg* *. These are the chief.

A ball of sulphur, as big as a child's head, must be fix'd upon a frame, and made to turn upon its axis. If you put your hand upon it whilst it turns round, it will become electric, and attract light bodies that are near it. But take it off the frame, and hold it by the axis in your hand, it will not only attract a feather, but repel it afterwards, and never attract it again, till the feather has touch'd some other body. He remarks that the feather driven by the globe attracts whatever it meets, or if it cannot attract it, sticks close to it; but that the flame of a candle drives it towards the globe. He adds that that side of the feather, which has been attracted and repell'd by the ball, is always the same, that sticks to it; so that it faces about, if you present the ball to the other side, or opposite part. If you suspend a thread over the ball, so as not to touch it, and place your finger near the lower end of the thread, the thread will be perceiv'd to recede from the finger. He has also observ'd, that the electric power of the ball was transmitted by means of a piece of thread at the distance of one ell, and that when the ball had acquir'd attraction by turning it round, whilst his hand was upon it, it preserv'd its virtue during several hours. The ball being rubb'd after this manner, upon holding the axis in a vertical position, the feather follow'd the motion of it all over the room, without sticking to the globe.

Much about the same time, *Mr. Boyle* † try'd

* p. 147. † *De mechanica Electricitatis productione.*

some experiments upon Electricity. It is easy to conceive that so curious a subject cou'd not escaape the inquiry of one, who with so much care and success, had taken an exact survey of all the different parts of natural philosophy, and to whom we are indebted for so great a number of the finest discoveries. He relates several observations he has made upon this subject.

There were philosophers who had advanced, that amber and other electric bodies, when heated, acquir'd an attractive faculty. Others were as positive, that it is only by friction, or rubbing, that this power can be excited. Mr. Boyle sides with these last; but he observes, that amber, if heated by fire, did acquire more virtue by a single friction, than by being rubb'd four times as long when it was cold.

There are two observations of great weight to be found in this author. One, that the electric virtue is preserv'd in a *vacuum*; and the other, that it communicates itself to different parts of matter, by their being brought near to electric bodies.

By what has already been said, it appears that excepting amber, and jet, and a few such bodies, no others were thought to be electric. But by some late reiterated and undeniable experiments, * it has been found that, metals alone excepted, they are all so, provided they can be rubb'd hard enough. Liquids, 'tis plain, are incapable of being rubb'd, therefore, are not susceptible of Electricity; the same has been observ'd of slime. All bodies, heated before the friction, are thereby render'd more electric; and in some, whose electricity by friction alone cou'd not be perceiv'd, it will be very easily discern'd, provided they are heated before hand. Hence it appears, that Electricity, is owing to a kind of vortex, or

* Philosoph. Transact. N^o 308. 309. 366. 422. *Memoires de l'Academ. Roy. des Sciences* — pour l'An. 1733.

surrounding vapour, of a very fine, subtile, and active texture, which encompasses the electrical body, and has strength enough to drive towards it light bodies, that come within its sphere of activity.

This *vortex* is founded upon something more than conjecture, for if you put very near your face a body, which is grown electric, you will feel a kind of tickling, like that caus'd by the touch of a cob-webb.

The electrical virtue is lost or dissipated in a very short time; which is caus'd by the breaking or dissipating of the *vortex*, or surrounding vapour.

Bodies, that have acquir'd Electricity, such as glass, which is one of those that acquire it the most, cast light in a dark place like the glow-worm.

A body, that is become electrical, upon touching another body, or being placed very near it, communicates its virtue to it. It has this effect upon metals, altho' they cannot become electric *of themselves*, I mean, by being heated and rubb'd. Iron is the only body that acquires this virtue of the load-stone, and becomes attractive of iron: but all bodies may acquire Electricity from one that is electrical, liquids themselves not excepted. Water, upon an electric glass-tube's being placed sufficiently near it, attracts hair, or bits of thread; and the hand of him that performs these experiments becomes electric.

It is to be suppos'd that the *vortex* of the body, that is electric *of its self*, cleaves or adheres to the body, which is so, only *by communication*; or rather that it divides itself between the two.

The different colours, of bodies, either natural or artificial, are of no consequence in themselves in relation to Electricity; altho' a very skilful observer has been of a contrary opinion with some appearance of probability. What may cause some variety, are the different ingredients, of which artificial colours are compounded.

A body, that is become electrical, such as a glass tube, which communicates its virtue to a body at a

small distance, will still continue to communicate it at a greater distance; provided the intermediate space be fill'd up by some contiguous body, such as a stick or a rope. For example, if you fasten the glass-tube to one end of a rope, and another body to the other end, this body, in a short time, will become electric. This virtue is soon lost in crossing a space only full of air. To be perpetuated for any considerable length, there must be a body, round which, lest it shou'd be dispers'd, it may cling or wrap its self.

It is almost incredible how far this power thus propagated may be transmitted. Who wou'd believe that it cou'd be preserv'd in a garden-walk 300 foot long? But this is nothing. Turn into another walk of the same length, with the same rope, and the same virtue will still continue; and by this means it has been transmitted to so great a length as 1256 feet. The highest wind cannot divert these prodigious *effluvia*; but a moist damp air very much hurts Electricity.

Bodies the easiest attracted, or the least electric of themselves, are the fittest to transmit at a great distance the electric power. For this reason, in the experiments just mention'd, an ordinary rope does a great deal better than one of silk; and it is very proper to wet it, because water itself cannot be render'd very electrical.

A child, horizontally suspended by ropes, fastened to the cieling, a glass-tube well rubb'd being apply'd to his feet, his head becomes electric; and the tube being apply'd to his head, his feet will acquire that faculty. The same experiment may be try'd upon a bottle of hay or a faggot, suspended in the same manner as the child. There must be a great quantity of matter in the *vortex*, to take in so great a bulk, and it not only acts upon the surface, but it penetrates too inwardly, at least, to some degree, for all the little bits of wood or hay are render'd electric thereby.

We

We have hitherto chiefly spoken of the *attraction* of electric bodies ; but this is not all ; they are also endued with a faculty of *repelling*. What they have at first attracted, so as to stick close to them, they afterward throw off with the same force with which they had attracted it. A small leaf of gold, if you let it fall upon a glass-tube well rubb'd and placed horizontally, will adhere for a moment or so to the tube, but the very next instant, it will fly up into the air, with a very quick motion, to the height of 8 or 10 inches, where it will stand unmov'd. Upon raising the tube towards it, it will fly from it, and rise in the same proportion as the tube. It will descend in the same manner, if you lower the tube ; and this will last as long as the tube preserves its virtue, unless one happens to touch the leaf suspended in the air ; for then it will immediately fall back again upon the tube, and the very next instant be sent up again to the same height, till the tube has lost its strength. The action of the surrounding vapour shews itself plainly here ; the *vortex* of the tube incloses the leaf and attracts it, out of which another forms itself round the leaf, by which this last acquires the electric power. From the action of these two vortices, it is easy to conceive, that striving to extend themselves a contrary way, they are in a kind of *equilibrium*. But the glass tube being more solid and less moveable, its vortex gets the better of that of the leaf.

We have all along been talking of the action of an electrical body, upon another body, of a weight and size suitable, but not endued with Electricity. This causes first attraction, and next repulsion. But if the second body has been made electric, the case is quite different ; then there will be only attraction, or only repulsion ; and as some bodies will be constantly attracted by the glass tube, so others will be constantly repell'd by it. This apparent inconsistency will be solv'd, by distinguishing two different kinds

of Electricity: The one, of glass, chrystal, precious stones, &c. the other, of amber, jet, gum and other unctuous matters. Do but present to the glass tube a body that has contracted this second kind of Electricity, and the tube will not fail to attract it; on the contrary, it will repel a body that has contracted the first kind of Electricity. It will be the same *mutatis mutandis* in a piece of amber or gum. Thus Electricities of the same kind seem to be at variance; whereas those of a different sort seek to unite. The reason I take to be this.

The two different Electricities have two vortices of a different nature; the stronger attracts the weaker, or rather, the weakest is swallow'd up by the strongest; by which means they incorporate, and join in the same motion, which causes the attraction. But where the Electricity of both bodies is the same; the vortices also being of the same nature, they cannot incorporate or unite. In the same manner as water, which being pour'd into other water, constantly increases its bulk, but never mixes or incorporates with it: When, at the same time, any other matter, reduced to powder, mixt with the same water, presently incorporates, but never increases its bulk.

I shall conclude with observing, that silk, linnen, paper, have of themselves the same sort of Electricity as unctuous substances: But that wool, feathers, the back of a live cat, have that kind which is proper to glass.





N^o 5. Saturday, December 3, 1737.

Idem hic annus censuræ initium fuit ; rei à parvâ origine ortæ : quæ deinde tanto incremento aucta est, ut morum disciplinæque Romanæ penes eam regimen, senatus, equitumque centuriæ, decoris dedecorisque discrimen sub ditione ejus magistratûs, publicorum jus privatorumque locorum, & veltigalia populi Romani, sub nutu atque arbitrio essent.

LIV.

AS the Roman History is to be read in most modern languages, but particularly in our own, and is to be found in every body's hands amongst us, it has been thought, that for the better understanding of it, a short but exact account of one of the chief offices, among that wise and warlike people, wou'd not be unacceptable. It is the office of *Censor*, I speak of, which was peculiar to the *Romans*, which no other people had ever thought of before them, and in which, notwithstanding its great excellency and use, they have not been follow'd, or at least have been but faintly imitated, by other nations.

This magistrate took his name from the *census*, or general review of the people, instituted by *Servius Tullius*, the sixth king of *Rome* : And this for two very good reasons ; the first, that he might at once be acquainted with the whole strength of his people ; the other, that he might engage his subjects

to.

to furnish, each his respective quota, in order to provide for the necessary expences of the Government. He order'd all the citizens to come and inscribe their names, declare their age, the quality and condition of their parents, the names of their wives and children, and to bring in, an exact inventory of all their effects. And lest this order shou'd not be punctually executed, he publicly enacted, that whoever fail'd coming upon the appointed day, shou'd be sold as a slave. The *Romans* readily obey'd the orders of their king. He distributed them into classes and centuries, and oblig'd them to pay, every one, proportionably to his income, a certain sum for the public use. He enjoyn'd them all to appear in arms by break of day in the *Campus Martius*, or field of *Mars*, the horse and foot divided by centuries. He himself drew up this army in order of battle, review'd and purify'd it by the sacrifice call'd *solitaurilia* or *suovetaurilia* in honour of *Mars*, in which were sacrificed a bull, a ram, and a boar who had first been led in procession, three times, round the army; a ceremony always observ'd since at the closing of this kind of pole. For *Dionysius Halicarnassus* positively affirms, that as low as his time, the *Censors* were wont, after a review, to purify the *Romans* in this manner. And this was call'd in their language *lustrum*; a name, that was afterwards given to the duration of the *Censor's* office, which was held five years by the same persons.

When *Brutus* had expell'd the kings, the power of the *census* or *civil review* was transmitted, with all the other regal functions, to the consuls, who for 67 years exerted this right. But the *Romans* being engag'd in continual wars, and the consuls frequently call'd off from the exercise of their civil jurisdiction to the command of their armies, the *census* began to be neglected; nor was it renew'd till after the space of 17 years. In the year of *Rome* 312. *M. Geganius Macerinus* and *T. Quintius Capitolinus* being consuls,

consuls, they propos'd the creation of a magistrate, whose sole business shou'd be the *census*. This was approv'd of by the senate, who decreed, that two persons shou'd be chosen for that purpose, men of known integrity, patricians by birth: and accordingly, the choice generally fell upon consular men, that is, such as had been consuls.

This was practis'd till the year 402 when *Martius Rutilus*, the first plebeian that had been honour'd with the dictatorship, obtain'd the office of *Censor* which he held jointly with *Cneus Manlius Imperio-sus*, a consular person. However, the first who receiv'd this dignity at the hands of the people were *L'Papius Mugillanus* and *L'Sempronius Atratinus*, the consuls of the preceeding year; and as they were expressly created for the civil review or *census*, they were call'd *Censors* *.

This dignity came to be look'd upon as one of the first of this flourishing common-wealth: for in time the power of the *Censors* reach'd so far, as to elect, depose, and reinstate whom they pleas'd, either among the senators, or *Roman* knights. Besides, they were in a manner masters of the public revenues, customs, and farms of the *Roman* people, and surveyors or superintendants of all public buildings, and had the right of examining into the conduct and manner of living of all sorts and conditions of men: so that the honour or dishonour of each individual seem'd to be intirely at their disposal.

Several learned men have differ'd in regard to the place wherein the people were review'd: some saying that the *Censors* review'd them in the place, where public affairs were transacted at *Rome*, call'd the *Forum*, and that they offer'd the sacrifice of atonement in the field of *Mars*; others being of opinion, that this field was the scene, both of the review and

* *Liv. V. 9.*

purification too ; and no doubt this might often vary and be performed, sometimes in one place, sometimes in the other. However, *Livy* tells us, * that in the year of *Rome* 319, the *Censors* *C. Furius Pacilus* and *M. Geganius Macerinus* review'd the citizens, for the first time in a large house, or hall, which they had caus'd to be built for this very use in the field of *Mars*, and gave it the name of *villa publica*. This answers pretty well the guild-hall here in *England*, or the *hôtels de ville* abroad.

The people, divided by tribes, met in the field of *Mars*, and were summon'd, one by one, by the public cryer, to make their appearance at the *Censor's* tribunal, in whose presence they underwent the same scrutiny, and made the same declarations they us'd to do, under the kings and consuls (as has been mention'd in the beginning of this paper) which were immediately register'd by proper officers in the public records. But, if it appear'd to the *Censors*, that any one had prevaricated or disguis'd the truth in any the minutest circumstance, they refus'd to receive their declaration. Absent citizens had leave to appear by proxy, provided they took care to chuse in their stead a man of known probity, and that they assign'd a reasonable cause for their absence. *Varro* † has preserv'd the set form made use of by the *Censors* taken from the *Censorian* tables.

This civil, was follow'd, by a military review. The *Censors* call'd together and review'd in the field of *Mars* the city army, I mean those soldiers, whose province it was to guard and defend the city. They marshall'd them by centuries, or companies of a hundred men. After which, was offer'd, to conclude the whole, the sacrifice call'd *suovetaurilia*. There are two things, with regard to this sacrifice, that deserve not to be forgotten. The first is, that

* IV. 22. † *De Ling. Lat.* l. 6.

great care was taken to chuse, for the leading of the victims, men with happy names, such as *Valerius*, *Salvius*, *Statorius*, *Victor*, as a good omen to the solemnity; the second, that vows were made and strictly perform'd for the preservation and prosperity of the *Roman* people. These vows generally consisted in building temples, appointing festivals, or other such religious ceremonies in honour of the gods. And every *Censor* did his best endeavours to make good and fulfill during his *Censorship*, the vows made by his predecessor.

After these solemn vows, the *Censor* to whose lot it was fallen to close the *lustrum*, clad in a robe, fac'd with purple, call'd *prætecta*, and crown'd with flowers, himself, gave with an ax, the first blow to the victims, as we learn from *Athenæus*. The sacrifice ended, the *Censor* was oblig'd to march back to *Rome* the city guard under their banner. As for the *Censorian* tables, *Livy* assures us that they were laid up in the treasure, among the archives of the common-wealth, near the temple of liberty upon the *Aventine* mount.

If any one had taken a false oath, if a judge was accus'd of having taken a bribe for the deciding of a cause, if a citizen had sold or mort-gag'd his estate without reason, or was guilty of extravagance or prodigality, all these were to be tryed in the *Censor's* court, from whence there was no appeal. All affairs, relating to marriages, were within their jurisdiction, and upon each citizen's appearing, as was the custom, before the *Censor*, he was ask'd this question. - *Ut tu, ex animi tui sententiâ, uxorem habes liberum quærendorum causâ?* Hast thou got a wife of thine own free choice in order to have issue by her? He, who cou'd not say yes, and was forc'd to own himself a batchelor, as an idle useles fellow had a fine set upon him, which was call'd *æs uxori-um*, wife-money. He, whose wife was barren, was oblig'd to divorce her in order to marry another,

better able to bear her part in increasing the common-wealth.

One of the most considerable functions of the *Censor's* office, and that gave them the most credit was the right they had, of chusing those, who were to sit in the senate, and of naming the head of it, call'd *princeps senatus*, as well as of punishing those members who were guilty of some misdemeanour, by depriving them of the rank of senator. Those, that had committed some heinous offence, did not come off at so cheap a rate. They not only lost their dignity, but the *Censor* mov'd them out of a superior into an inferior or less honourable tribe, and made them pay a fine, or a yearly tax. The most common punishment, inflicted upon the knights, was to take from them their horse, that was kept at the public charge, and their gold ring, whereby they lost the privileges of the body they belong'd to; but upon committing a more grievous fault, a knight not only lost his horse and ring, but, in the same manner as a senator, was turn'd out of his tribe and fin'd.

All the *Roman* knights being call'd by the public crier were oblig'd, as has been said, to appear before the *Censors*, to answer what objections might be made to them, and to shew that their horses were in good case. If any was lean, or but ill taken care of, the *Censors*, in order to punish this neglect in the knight, took away his pay, call'd *æs hordearium*, oat-money. This was less disgraceful than the other punishments, as being only the penalty of carelessness, call'd *impolitia*. On this occasion *Agellius* relates, * that during the *Censorship* of *Scipio Nasica* and *M. Pompilius*, as they were reviewing the *Roman* knights, they took particular notice of one, a fat corpulent man of a surprising bulk, whose

* *Nec. Attic.* IV. 29.

horse was as remarkably lean, as the rider was fat. Upon his being ask'd by the *Censors*, how he came to be so plump himself, whilst his poor horse was nothing but skin and bones. *The reason*, answer'd he, *is easy to guess. I am taken care of by my self, but my horse by my groom.* For this sawcy answer, he was fin'd and depriv'd of his dignity. But, in all likelihood had he behav'd more modestly, he wou'd have got off with the forfeiture only of his oat-money.

When a plebeian, or one of the commonalty, committed a fault so considerable, as to deserve the *Censor's* animadversion, he was, by him, depriv'd of his small share in the sovereignty (for by this name, I think, may be call'd the right of voting) excluded from any place or employment, condemn'd to pay a fine, and reduced to the condition of a degraded citizen, who had nothing in common with the rest, but his paying the taxes*.

In the colonies and municipal towns, and among the allies of the Latin name, or the inhabitants of *Latium*, each city had its particular *Censors*, who took care publickly to register the name, condition, and estate of all the inhabitants.

The *Censorship* was at first conferred for the space of five years; but was afterwards restrain'd to a year and a half by the dictator *Mamercus Amilius* † in the year of *Rome* 320, that is, eight years after the creation of this office, which, altho' discontinued at times, subsisted near 400 years, till it was quite abolish'd by *Julius Cæsar*, who assum'd to himself the power annex'd to it, which he join'd to the perpetual dictatorship, by the name of *præfectura morum*, or president-ship of manners. Nevertheless, *Dio* relates, that *Augustus*, being grown more powerful and absolute than *Julius* had ever been, had

* *A. Gell. Noct. Attic. XVI. 13. Asconius in Divinat.* † *Liv. Hist. Rom. l. 4.*

the very title of *Censor* conferred upon him for the space of five years; and this in all probability was reviv'd or renew'd every five years during the remaining part of his life. For we do not see that under the emperors, there have been any other *Censors* than they themselves: those princes looking upon such an office, as a check upon their own authority, and as very improper to be exercis'd in a monarchy by any but themselves. There are but three emperors, that are known to have taken upon their coins the title of *Censor*. *Vespasian*, and his two sons; *Titus*, who for his princely virtues was call'd the delight of mankind, and *Domitian*, a monster of cruelty.



N^o 6. Saturday, December 10, 1737.

————— *Juvat ire per alta*
Astra. Juvat terris & inertī sedē reliētis
Nube vehi, validique humeris insistere At-
lantis.

A celebrated author amongst us, whose speculations, when they were first publish'd, were the favourite amusement of the polite and witty, and at present serve to adorn the libraries of the learned, the toilets of the fair, and are to be found in the hands of all men of true taste as well as of pretenders to it, has observ'd, that whatever pleases the imagination is either *great*, *uncommon*, or *beautiful*; and that, under these three heads, may

may be ranged all those ideas, produced in the mind by the works of art or nature, that affect it with delight, and are, if I may use the expression, a feast to the soul. Thus the vast expanse of the sea; the wildness of an uncultivated desert, overgrown with thickets, and bounded by shaggy rocks; and the refreshing variety, caus'd by the sight of woods, inclosures, pasture and corn-fields in a fertile and improv'd country; tho' quite different from each other, are all three objects of pleasure, and so many instances of the justness of that excellent writer's observation. Now, were we to look thro' the whole creation, and as it were, to ransack nature itself, we shall never find any one object that possesses these three qualifications, in so high a degree, as those majestic globes that roll over our heads: the Sun, who not only cheers and guides us by his light, but fertilises the otherwise barren womb of the Earth, and is the chief instrument, made use of by the Supreme Being, to enliven and invigorate whatever preserves or cherishes human life; the Moon whose reflected brightness, at the same time that she supplies by her gentle light the absence of the sun, neither heats nor dazzles, and by this means never interrupts the freshness or quietness of the night; the stars, those everlasting lamps, whose twinkling rays make up the most glorious illumination that the heart of man can conceive. How *beautiful* they are, every eye that has ever look'd up towards them can judge! How *great* must they be to emit such a quantity of light, and act so powerfully at so vast a distance! How *uncommon* (for by this word must be meant *surprising*) are the constant vicissitudes and regular revolutions of these heavenly bodies! These cannot fail of having a very strong effect upon an attentive mind; in so much that *Aristotle* * was of

* *Apud Cicer. De Nat. Deorum. l. 2.*

opinion, that were a man to be, from his infancy, confin'd in some cave under ground, till he came to years of discretion, and not till then, admitted to the sight of the heavens; such a prospect wou'd at once instruct him more than a thousand lectures, and wou'd make him immediately conclude, that so noble a performance must be the work and contrivance of some infinitely wise intelligent power, and in a word, bring him to the knowledge of a God.

These things well consider'd; is it at all to be wonder'd, that *Astronomy*, or the study of the heavenly bodies, shou'd have been one of the earliest occupations and employments, that have exercis'd human reason? And indeed, in the infancy of the world, when men liv'd in a happy ignorance of all those imaginary wants that rapine and luxury have since introduced; when their hearts were free from those tormenting passions, ambition and the lust of power, and disengaged from religious broils and civil contests, no wonder if *Astronomy* took up their attention and engros'd their leisure. Accordingly, there was some progress made in this science before any other, and I will venture to say it may be look'd upon as the most ancient of all. The countries first inhabited abounding in pasture, most men spent their time in tending their flocks. This solitary and quiet life, together with their being continually in the open air, naturally led them to the contemplation of the heavenly bodies. These rude and imperfect sketches were afterwards improv'd and refin'd upon by the *Egyptians* and *Assyrians*, by whom men were set apart for that purpose, who made this study the business of their lives. Hence the *Magi*, who, to their real knowledge of the stars, added that pretended one of futurity, which, were they to be believ'd, they cou'd read in the heavenly bodies, from whose different aspects and appearances they undertook to foretell with certainty most remarkable events, and this notion so far prevail'd in an ignorant

rant and superstitious age, that by it, they govern'd both king and people.

The *Greeks*, who borrow'd most of their learning from the *East*, and generally improv'd it, did the same by *Astronomy*. But falling into the hands of philosophers, and among a brave free people, it was made a better use of, and often serv'd to undeceive the vulgar. Tho' indeed its chief practical use was always to fix and ascertain the measure of time, to give rules and directions to the husbandman for his tillage, and to be a sure and unerring guide to the mariner to mark his way upon the track-less unbounded ocean. At last, this science, like most others, came to be reduced into several systems. The best and plainest, attributed by some learned men to *Aristarchus*, and by others, to *Archytas*, *Pythagoras* his disciple, was rejected; that of *Ptolemy*, so intricate and perplex'd that I shall not, at least at present, trouble my readers with it, was adopted, first by the *Greeks*, then by the *Romans*, and lastly by the *Moderns*; till in the year 1543 or thereabouts, *Copernicus*, a *German*, who to a clear and strong understanding join'd a vast application to the study of the heavens, discover'd the errors of his predecessors and was the author of a new, or at least the restorer of the *Pythagorean* system, free from the difficulties that attended the others, perfectly answerable to all the motions of the heavenly bodies and withal, so plain and easy, that it carries along with it the greatest mark of truth and evidence that can possibly be, I mean, that it appears so natural to those, who compare it with the other systems, that they are apt to imagine they cou'd have found it out themselves. It has been improv'd by *Kepler*, and adopted by *Galileus*, *Cartesius*, and except *Tycho-Brabe* by all the philosophers, who have since made a figure in the learned world. But what adds still greater weight to the *Copernican* system is that Sir *Isaac Newton*, the lasting ornament of the age and coun-

country he liv'd in, has demonstrated, that by the help of it, the motions of the heavenly bodies are accounted for by mathematical principles, and are found conformable to the most exact rules of mechanism,

My design at present, is to give some notion of it; but in this, I am not a little puzzled, and I find I have taken upon me a task of no small difficulty. For, on one hand, those, who are already acquainted with these matters, will be apt to despise what I may say upon this head, as things that are easily found in every book written upon this subject; and on the other, to those that are quite ignorant of them, I am sensible it is not very easy to explain my self, so as to be readily conceiv'd and understood. The first will find an answer, which I believe will satisfy them, in my first paper: The others will, I hope, make some grains of allowance, and accept of these my hearty endeavours for their delight and instruction.

That arched vault of azure, in which seem to be fixt the sun, moon, and stars, tho' they be at a vast distance from it, is only the *æther*, or purer air impregnated with the rays of the sun. These bodies, in reality, are in an immense empty space. Those, that are nearest to us and endued with motion, are call'd planets; those, that are motionless and by far more remote, are call'd fixt stars.

In the center or middle of the planets is the Sun, round which they move in different times, and in several circles which are call'd orbits.

The planet nearest the Sun is *Mercury*, who performs his revolution round the Sun in 88 days; next is *Venus*, who goes round the same center in 224. Then the *Earth* in 365 days and a half; next *Mars* goes round in 687, *Jupiter* in 4333; and last of all *Saturn* in 10759 days.

These are call'd primary planets; and some of them are attended by lesser, call'd secondary, that move round their primary, as that does round the Sun.

Sun. So the Moon revolves round the Earth in a month or 27 days; *Jupiter* has four moons, or *Satellites*, that revolve round that planet, and *Saturn* has five. Far beyond all these are the fixt stars.

It has been seen that the planets mov'd round the Sun, in fix'd and determin'd times: that which is the nighest to it, in the shortest; that, which is most distant from it, in the longest time. But as they are of a globular form, that is, in the shape of a ball, they have a double motion; for if you roll a ball from one end of a room to the other, it cannot possibly go on, without rolling or turning several times upon itself. Thus it is with the planets; they not only go round the sun, but turn upon themselves, or as it is generally express'd, upon their own axis. By this word *axis*, is meant an imaginary unmov'd strait line, that is suppos'd to go thro' the middle or center of the ball or planet, and upon which it turns, as a wheel upon its axle-tree.

I have already shewn that there are six primary planets, whose names, together with the characters by which they are generally represented, are as follows.

Mercury ☿

Venus ♀

The Earth ⊕

Mars ♂

Jupiter ♃

Saturn ♄

They are not perfectly round, but rather in the shape of a spheroid. To have a right notion of a spheroid, you must imagine a globe, or ball, flatten'd at top and bottom or the two extremities, and very prominent in the middle or broadest part, like bowls, us'd in bowling greens, or rather, like a turnip. This is meant by *Astronomers*, when they say, that in a spheroid, the diameter at the equator exceeds that which passes thro' the poles. As for the diameter, it is a right line, drawn thro'

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the center of a circle and dividing it into two equal parts.

These terms explain'd, we may proceed in a short account of the planets. They are dark or opaque solid rough bodies, which wou'd not at all be seen, did they not send back or reflect the light they borrow from the common center, round which they move, the great luminary, or as he is call'd by *Milton*,

The golden Sun

*That from his lordly eye keeps distance due,
Dispenses light from far; they as they move
Their starry dance in numbers that compute
Days months and years tow'ards his all chearing*

lamp]

*Turn swift their various motions or are turn'd
By his magnetic beam, that gently warms
The universe, and to each inward part
With gentle penetration, tho' unseen,
Shoots invisible virtue even to the deep;
So wondrously was set his station bright.*

View'd thro' a good telescope, it appears to be a rough uneven, globular body, consisting of solid and fluid parts. The fluid parts are like a sea of fire, continually agitated, made up of glowing waves, fiery billows, and flaming ebullitions, whose vapours are continually rising from it in a thick smoak, and occasion those spots, that have often been seen upon the disk or surface of it. By observing these spots and following their motion, it has been found that the Sun turns upon his own axis, from East to West; this conversion is perform'd, according to most *Astronomers*, in about 27 days; but others, among whom is *Kepler*, a man to whom *Astronomy* is very much indebted, is of opinion that it is compleated in 24 hours. From the edges of the Sun's disk are perpetually shoot-

ing

ing forth bright flames. In the solid parts are often seen flashes of lightning, and there appears upon it several eminencies or high places, generally call'd the solar mountains, from which burst forth flames of fire. From whence there is room to suppose that the sun is a kind of huge *volcano*, in whose bosom are hidden vast subterraneous caverns and receptacles of fire, with beds of nitre, sulphur, and other combustible matters, that feed and keep up the flame, which breaks out thro' those mountains, as our subterraneous fires from the mounts *Etna*, *Hecla*, and *Vesuvius*.

The planet nearest the Sun is *Mercury*, whose mean distance from it is 32 millions of *English* miles. As the orbit, he describes round the Sun, is less than that of any of the other planets, so also, does he finish his period in less time, in the space of about three months, and he is never above 28 degrees distant from the Sun. He gives a clear lively bright light, but is seldom visible; being, as it were, absorb'd in the rays of the Sun, from which he receives six times more heat than the Earth does. This is the smallest planet, its diameter being but two minutes and a sixth or 2460 *English* miles, and its circumference 8000. There is no spot to be seen upon it, so that it has not been possible to determine whether or no it turns upon its center; but as we are sure that all the rest of the planets have that motion, it is to be suppos'd, that *Mercury* is not without it.

Next to *Mercury* is *Venus*, whose mean distance is about 59 millions of *English* miles from the Sun from which she is never distant above 45 degrees, and round which she revolves in about eight months, and receives twice as much light and heat from it as the Earth does, which she is thought by some to exceed in bigness. Her light is somewhat pale, which has made it been thought that there are exhaling from her globe vapours like the

morning dew, very rare, humid, and subtle. She is liable to changes like the moon, having been observ'd, at some times, to be almost full, at others gibbous or bunching out, and now and then horned like a crescent, under which shape both she and *Mercury* are often seen. Her appearing in the morning, just before the rising of the Sun, and in the evening, immediately after his setting, have given room to the poets to represent her as an attendant upon him, or a forerunner of *Aurora*; and has procur'd her the *Greek* name of *Phosphorus* or bringer of light, and the *Latin* one of *Vesper* or evening star. It is pretended by some that the rays, reflected from the Sun, and cast from her disk upon the surface of the Earth, are so strong, that bodies objected to them have cast a shadow.

After *Venus* is the Earth, which turns round the Sun in about a year, at the distance of 81 millions of *English* miles. She turns upon her axis, from West to East, in 23 hours 56 minutes, which produces the change of night and day, according as one half of her is turn'd to, or from the Sun. But this our own planet, with her close companion the Moon, shall be treated of more at large in another paper.

Next to the Earth and Moon is *Mars*, much farther from the Sun than the foregoing planets. By the spots upon his surface, it is known, that *Mars* turns upon his axis in 24 hours 40 minutes. His diameter is 4444 *English* miles. His mean distance 123 millions of *English* miles from the Sun, round which he moves in about two years, and from which he receives twice or perhaps three times less heat and light than the Earth. Nevertheless, *Mars* appears of a red fiery colour like a glowing hot coal. This may proceed from his globe's being made up of some bituminous, sulphurous, or nitreous matter, whose exhalations,
perhaps

perhaps not unlike those of the spirit of nitre, may make it appear of this ruddy colour. There has been observ'd, in the middle of his disk, a large black spot, which is thought to be a great cavity or hollow place. *Mezerai* * relates that in the year 797 it was remark'd by *Astronomers*, that they were a whole year without seeing *Mars*; if this be true, it must be suppos'd, that the globe of *Mars* had undergone some extraordinary alteration that hinder'd it from reflecting the light of the Sun.

Next to *Mars* is *Jupiter* the largest of the planets, which deserves to be particularly consider'd. He is, as it were, girt round by several broad belts, about the nature and uses whereof philosophers are very much at a loss. There is room to think that they are of a fluid matter, for they are often seen to part, and then join again, in the same place. The diameter of *Jupiter* is 81000 *English* miles and his circumference about three hundred thousand. His mean distance is 424 millions of *English* miles from the Sun, and he is 12 years going round it. Notwithstanding his vast bulk, he turns upon his axis, according to our *Astronomers* here in *England*, in less than 10 hours; but those of *Paris* are of opinion this revolution is perform'd in less than six hours, which is the swiftest motion that was ever known or heard of. He receives five and twenty times less heat and light from the Sun than the Earth, and as he always appears bright and shining, this has made a great many think that, if there are vapours rising from him, they must be very pure and subtle. This planet is accompany'd and enlightened by four satellites or secondaries, that constantly follow it as their center, each of which

* *Abrégé de l'Hist. de France.* Tome 1.

is larger than the globe of the Earth. The prodigious distance, between *Jupiter* and the Sun, has given room to doubt, considering his excessive brightness, whether his light was borrow'd from the Sun, or proper to the planet itself. But the observation of the shadow of its satellites, upon its disk or surface, which causes a kind of eclipse when they are directly between the Sun and this planet, has made it appear that *Jupiter* has no light but what is borrow'd from the Sun, and that these satellites are in the nature of our Moon and perform the same office.

We are at last come to *Saturn*, whose pale and gloomy light seems fit for nothing but to give the spleen. It has nevertheless afforded a world of observations to the curious. The five moons or satellites that attend it, the ring, by which it is encompass'd, in the same manner as an artificial globe by the horizon, are so many remarkable singularities that have given room to a good deal of speculation. This ring tho' at a considerable distance from it (for stars have been seen between that and *Saturn*) turns perpetually round it as about its center. This planet's mean distance from the Sun, round which it turns in about thirty years, is 777 millions of *English* miles. Its diameter is 68000 *English* miles, so that its circumference must be above 200 thousand, its disk being somewhat less than *Jupiter's*. Its light and heat is the ninetieth part of that receiv'd by the Earth.

I shall conclude this paper with short tables, exactly calculated, wherein the times of their different motions are carefully set down.

A Table

N^o 6. *The Weekly Essay.* 55

A Table of the time in which each planet turns upon its own axis.

	days	hours	min.	seconds
The Sun in	25	6		
Mercury uncertain.				
Venus	0	23	56	
The Earth	0	23	56	49
Mars	1	00	40	
Jupiter		9	56	
Saturn unknown.				

A Table of the time in which each planet, or satellite, turns round the center of its motion.

	days	hours	min.
Mercury in	87	23	16
Venus	224	16	49
The Earth	365	6	9
Mars	686	23	27
Jupiter	4332	12	20
Saturn	10759	6	36

Satellites of Jupiter.

First	in	1	18	28
Second		3	13	14
Third		7	5	43
Fourth		16	16	32

Satellites of Saturn.

First	in	1	21	19
Second		2	17	41
Third		4	13	47
Fourth		15	22	4
Fifth		79	22	4

Moon or Satellite of the Earth.

Periodical Month	27	7	43
Synodical Month	29	2	44



N^o 7. Saturday, December 17, 1737.

*Ætas parentum pejor avis tulit
Nos nequiores; mox daturos
Progeniem vitiosiore.*

HOR.

AS my readers have been so indulgent as to approve of some of my essays, they will, I don't doubt, be as favourable to what others may write. For my part, I must confess I have so mean an opinion of my own thoughts, that I am very glad of the opportunity, this letter gives me, of entertaining the public with those of another.

S I R,

Man has been defin'd by some, a risible, by others, a reasonable creature; but I can't help thinking the epithet of sociable belongs to him as properly as any other. As soon as men began to unite more closely and dwell together in cities, reason, or a kind of instinct, taught them that there was some regard due from one to the other, which regard, by each nation, was diversify'd, according to its particular genius.

The *Asiatics*, who had a lively imagination, a tender heart, and a supple mind, were almost guilty of excess in the expressions of their civilities. The humble manner in which *Abraham* and *Iot* receive

receive the Angels whom they took for men; the submission with which *Abigail* addresses herself to *David* to appease his wrath; and many other instances I purposely omit, are so many examples of this Eastern complaisance, which was carry'd to the greatest height by the *Assyrians*, *Medes*, and *Persians*, who were bred up in the strictest principles of passive obedience, and were wont to worship absolute power in its worst of shapes.

The *Europeans*, of a graver and more phlegmatic disposition, a greater soul, and a temper not easily to be subdued or controul'd, express'd their friendship, esteem, or respect, in a plainer or less servile manner. Accordingly we find that the *Greeks*, accusom'd to that equality whereby free and popular states are distinguish'd, despis'd and condemn'd, as the meanest prostitution, that supine groveling homage exacted from them by those kings of *Persia*, in whose service they had courageously expos'd their lives. Tho' at the same time they were the politest people of the then known world, and were as remarkable for their courteousness and good breeding, as for their great skill in all the arts both of war and peace.

Notwithstanding the manners of the inhabitants of *Italy* had been very much softened by the mixture of several *Greek* colonies, yet, from History, they appear rather downright honest people than fine gentlemen.

Rome was at first only a confus'd heap of uncivilis'd nations. Their leading a meer country life, together with their perpetual wars, preserv'd for some time their genuine rusticity. The constitution of their government was the first thing that polish'd them; for necessity made the common people submissive and respectful; and ambition taught affability to those in higher stations. At last, towards the latter end of their common wealth, and under their first emperors, plenty,
I luxu y,

luxury, Letters, but especially, their intercourse with the *Greeks* who had improv'd their manners after the loss of their liberty, made them excell all other nations in politeness as well as power ; so that they were proud of nothing so much as of what they call'd *Roman urbanity*. This in length of time came insensibly to alter for the worse, and at the dismembring of the empire degenerated into fulsom compliments and insipid nauseous adulation.

Hence we may conclude that it has far'd with politeness as with most other things. They rise from small beginnings and by slow degrees ; they afterwards are carry'd as far as they can go ; but, when once they have reach'd the summit, they presently fall into a declining condition, and decay much faster than they increas'd. Like the life of man, which, after a long and tedious childhood, succeeded by a few years of maturity and perfection, often ends in an infirm old age ; or to use a less affecting comparison, like *Sisyphus* his stone, which according to the fable, is feign'd to be forc'd up the hill with great pains and labour, to abide hardly one moment at the top of it, and then to roll down the slope with rapidity.

Riches and power, virtue and learning, honour and morality, nay religion itself, have had the same fate among all nations and in all ages. In ancient times, the most celebrated common-wealths such as *Rome* and *Carthage*, *Athens* and *Sparta*, the two former competitors for the empire of the world as the latter were for that of *Greece*, are illustrious proofs of what I assert.

Rome, till the end of the second Punic War, grappled hard with her neighbours for a smaller territory, than what is, at present, possess'd by the *Pope*. Then she was valiant, honest, and laborious. She afterwards waged war with mighty kingdoms and made herself formidable to the
greatest

greatest princes. Then she grew learned, knowing, polite, and magnificent. She at last arriv'd to such a heighth of wealth and power, as to overcome all that withstood her, establish her dominion without controul, and reign sovereign of the world. Then she became dishonest and covetous, luxurious and effeminate, and fell a victim to the enterprising and extensive genius of one of her own citizens, whose talents cou'd only be equal'd by his towering ambition. This, were it not too tedious, might be exemplify'd, in the same manner, in the other republicks above mention'd, and indeed in all kind of governments.

Christianity itself, tho' flowing from so sacred a spring, has not been free from these alterations: It is too well known how soon it degenerated from its primitive purity and became subservient to all the purposes of superstition, violence and fraud. Two centuries are not yet pass'd since it had almost disappear'd, and seem'd destin'd to undergo that fatality incident to all other human things; but true religion can never perish. It reviv'd again at the reformation, and seem'd to be turn'd once more into its proper channel, thence extending itself, on all sides, like a noble river, whose pure and limpid streams afford cooling wholesome draughts to the thirsty flocks and wearied traveller, and in their peaceful course enrich the banks, near which they flow, distributing health and plenty. But, at present, does not its course appear again interrupted, whilst the transparency of its waters is troubled and disturb'd by deism, infidelity, and I know not what?

I am afraid to transgress the bounds of a letter, or else I shou'd endeavour to shew this constant vicissitude in many other instances; but I shall conclude with a story which may serve to enliven and *égayer* a little what some may think too serious.

About twenty or thirty years since, a venerable old man, who had pass'd all the offices in one of the chief towns in *Holland* with honour and applause, and had gain'd great riches without reproach, had some thoughts of retiring to his country-seat. In order to take leave of his friends and acquaintance in a handsome manner, he invited them, young and old, of both sexes (and they were people of the best fashion in the place) to an entertainment at his own house. They met together with great expectations, but to their no small surprise, saw a long table, hardly cover'd with a scanty blue cloth, on which were alternately placed, platters full of butter milk, and sowre-crude, heaps of pickle herrings and huge cheeses. The rest of the cheer was made up with butter and *roggen-brot*, or rye-bread; and cans of small-beer were at hand for those that had a mind to drink; trenchers serv'd instead of plates, and not a single servant attended. The company secretly curs'd the old fellow's humour, but in regard to his great age and still greater merit, bridled their resentment and seem'd to take up contentedly with their homely fare.

The old gentleman seeing the joke take, was unwilling to carry it too far; but soon shifted the scene. Two boorin-maids, in their cleanly country garb, appear'd at their master's call, and brought in a second course. The blue cloth was exchange'd for white linnen, the platters and trenchers were transform'd into pewter, the mean food into good salt beef and boil'd fish, the brown into household bread, and the small beer into wine. The guests grew better pleas'd, and the master of the feast more earnest in his invitations. After he had given them time to eat of this second course, at a signal he made, the third was serv'd up by a *maitre d'hôtel* in form, follow'd by half a dozen powder'd lacquies in gawdy liveries. The most
beautiful

beautiful flower'd damask was spread over the table, the richest plate and most curious china adorn'd the side-board, whilst a profusion of soups, olios, tame, and wild fowl, ragoûts, *blancs mangers*, in a word all that the art of a modern *French* cook cou'd produce, ranged in a well-dispos'd judicious order, seem'd to court the taste and reaw the appetite of the whole company. Add to this strong-body'd chateau-margou, generous burgundy, sparkling champaign, in short, a choice of the best wines, commerce can procure to a trading country. And, that nothing might be wanting that cou'd please the senses, by that time a sumptuous dessert was brought in, a melodious concert, made up of an agreeable variety of instruments, was heard in the next room. Healths went round, mirth increas'd, and the old man, seeing that nothing but his departure, and of the gravest of the company, was waited for to give a loose to joy and pleasure, rose up and made the following discourse.

Gentlemen and Ladies. I heartily thank you for this favour; it is time for one of my age to withdraw; but I hope those, that are dispos'd for dancing, will accept of a bail, which I have order'd to be prepar'd for you. Before the fiddles strike up, give me leave to make a short reflection upon this entertainment, which otherwise wou'd appear whimsical and the effect of humour; it may serve to give you an idea of our common-wealth. By living after that penurious manner exhibited in the first course, our ancestors rais'd their infant state, and acquir'd liberty, wealth, and power. These were preserv'd by our fathers, who liv'd in that handsome but plain way, you have seen in the second course. But if an old man be permitted, before he leaves you whom he dearly loves, to speak his thoughts freely, I am indeed afraid, that that extravagant plenty, you have observ'd in the last course, will, if we go on, deprive us of those

those advantages, that our ancestors have earn'd by the sweat of their brow, and that our fathers, by their industry and good management, have transmitted to us. Young people, I advise you to be merry this evening, but to think seriously to morrow, upon what I have been telling you to day. Good night.

The conclusion of the old man's speech shall be that of my long letter. If these loose thoughts can be of any use to you, please to insert them in one of your papers.

Norwich Decem-
ber 1, 1737.

Your reader and

humble Servant

A. B.



N^o 8. Saturday, December 24, 1737.

———— *Mutatas dicere formas.*

OVID.

SELF-love is the darling or rather only passion of mankind; for all others, if well consider'd, will be found to unite and center in that alone. And indeed, when it is govern'd by the rules of wisdom and reason, it becomes the spring of the noblest actions and productive of all the social virtues: As, on the contrary, when it takes folly for its guide, it gives birth to narrowness of mind and all those vices, which

which make a man uneasy in himself, and odious to others. In short, I dare be confident that self-love is the master-spring of all our actions.

If this be allow'd, it will not be difficult to account for that kind of horror or contempt most people are apt to shew towards the least, but not the less beautiful part of the creation; nor for those little sarcasms and witticisms, which men, of more fancy than judgment, have been so liberal of, when the study of this part of nature has been seriously recommended by the learned. The intelligent reader will readily apprehend that I am speaking of the knowledge of *Insects*. To self-love it is owing, that we judge of the value of things relatively to ourselves. Whatever is superior to us in bulk, or size, is generally what causes our admiration, whilst what is inferior is despised and undervalued. Now to one that considers these things more abstractedly they will appear in a quite different light. Both what is infinitely great and infinitely little proves equally the infinite wisdom and power of the maker. The smallest pebble is form'd by the same causes as the hugest rock, the lowest shrub owes its growth to the same principle of vegetation, as the tallest oak, and all that is requisite to animal life is to be found in a mite, as well as an elephant.

One that spends his life in the study of the heavenly bodies, that examines the regularity and laws of their motion, the time the planets take up in revolving, both upon their own axis, and round their great center the Sun, the light they all borrow from him and reflect upon one another. I say one that spends his life, in this manner, will be look'd upon to have made choice of the noblest speculations, and best suiting with the dignity of human nature. But he who has taken the same care and pains in getting acquainted with the nature of *Insects*; who, by his industry, has discover'd their several parts and organs, their heart and lungs, their trump or pumping pipe,

pipe, their eyes of so nice and artificial a structure; who has inquir'd into the motion and action of all these different parts, will he not, by most men, be thought too intent upon trifles? And yet there is perhaps as much difficulty in accounting for these things, as for the real and apparent motions of the celestial orbs. One thing I think I am pretty sure of, that the former has a much nearer relation to the knowledge and well-being of our own bodies than the latter. And if it appears to us less valuable, it is only, because it turns upon objects incapable of striking our fancy by their greatness.

Had it pleas'd him, to whom prodigies are easy, that, either upon the surface or within the bowels of the earth, should have been found thousands of small hollow balls of chrystal, in the cavities whereof might be discover'd, by the help of good glasses, small bodies continually moving round a luminous center, in the same manner as the planets move round the sun, in a word, a planetary system of atoms; wou'd not this be look'd upon as an admirable contrivance? wou'd not the periodical revolutions of these beads of excessive smallness be esteem'd worth the inquiry of the ablest philosopher? But if these little globes, being to be found every where, were once grown familiar to the eye and mind; upon comparing what wou'd appear most wonderful in them with what is most wonderful in animals of the same or a less size, it is these last, I dare say, that wou'd engross all our admiration. What wou'd strike us most, in the diminutive spheres, wou'd be the regular motion of six or seven globules round a center. How many millions of globules are perpetually passing, to and fro, in the bodies of the smallest Insects, and describing curves much less easy to be accounted for than those of the planets? For it is allow'd, that the fluid, that is in Insects instead of blood, is chiefly made up of globules, as blood is in larger animals. But besides that of the blood, which
circu-

circulates thro' so many channels and sluices, how many more admirable motions are to be found in the bodies of *Insects*? some to take in and let out air, others to secrete the humours and prepare digestion. And if we look into the inside of one of these little creatures, how many things are requisite to enable it to put forth so many exact copies of itself?

Two things are chiefly admired in a work of mechanism: its being as plain and simple as possible, in regard to the end for which it is intended; and its being compounded of a great number of parts, and of such parts, as are most different one from the other, and that form a necessary, not a superfluous variety.

This is chiefly to be observ'd in *Insects*, the nice framing of which, notwithstanding their smallness, is far superior to that of larger animals: since nothing is more certain, than that there is a greater diversity of parts in their bodies, than in those of the elephant and whale. In order to bring to life a butterfly, a bee, a gnat, or in short any of those *Insects* that alter their shape, two creatures, or at least, what is equivalent to two, must have been first form'd. It is from a caterpillar that the butterfly, and from a worm that the gnat, the wasp, and the common fly borrow their being.

All *Insects*, whether of the flying or creeping kind, may be divided into three sorts or classes. First, those that are made up of several rings, by the means of which, they can either stretch or contract, at pleasure, the common membrane or skin, in which they are inclos'd. Secondly, those, whose bodies consist in several thin plates, that slide over one another. Thirdly, those, who have two or three principal parts join'd by a small fibre or thread.

Of the first kind are all sorts of worms, both with feet and without. In order to move from one place to another, they stretch the musculous skin, that separates the first rings from those that follow:

They carry the first, either that towards the head, or that towards the tail, to a certain distance. Then, wrinkling and drawing the skin to the same side, they bring over the second ring, and so successively the rest of their body. Thus, these creatures, even without feet, walk and transport themselves where they please; spring out of the earth, or sink into it, upon the least apprehension of danger; advance or retire as occasion requires.

Of the second kind are most sorts of flies. The scales or plates, wherewith their body is made up, may be lengthned by unfolding, or shortened by running into one another, as the braislets or cuisses of our old armour.

Of the third kind are ants, spiders, &c. Their bodies are divided in two or three portions that scarce seem to hold together. From this very circumstance they have their name; for from the Latin word *insecare*, which signifies *to cut*, is deriv'd the word *Insect*, as being thus cut out and divided into several parts.

In general, they all owe their birth to an egg, which is not, as is commonly believ'd, laid at random any where, but in such a place, as is properest for the little one that is to come out of it, and where he may find food, covering, and whatever may serve to cherish, nourish, and protect him. Thus the butterfly is very careful to leave its eggs upon those plants, where the inclos'd caterpillar is to feed, spin, and spend his whole life: Whereas the common fly chuses to shed her spawn upon the meat, she herself lives on, and makes choice of that part of it, which beginning to spoil, is fill'd with a kindly juice, fit for the support of the worm her egg produces. Other flies pitch upon the body of a caterpillar, in which they insert their eggs, and thereby make an excellent provision for their young one, who, till it is time for him to creep out, finds both shelter and nourishment in the inside of the caterpillar. It would be endless

to enumerate the several methods, that are made use of by Insects, for the preservation of their breed. These few instances already mention'd will suffice.

Upon leaving their egg, some appear in the complete shape and form as they will preserve all their life: Such are snails, who come out of the egg with their house upon their back, which they only increase, as they grow larger, by the addition of new rings or circles to their shell: Such are spiders, who differ from what they were, when they left their egg, only in their skin and bulk. But most other Insects undergo several changes, and put on successively the figure of two or three creatures that bear no manner of resemblance to each other. So that they may be consider'd as two or three bodies (furnish'd with proper and different organs) that are lapp'd up in one, and who, unwrapping themselves one after the other, produce a real metamorphosis, as surprising and agreeable, as any of the fictitious, that are celebrated by *Ovid*.

The first condition, these Insects appear in at their first entrance into the world, is low and humble enough, even that of a very little worm, some with, some without feet. Those, who are without, are taken care of by the parents, who provide them with a convenient lodging, and bring them their daily sustenance. Those with feet, seek their food upon the leaves of the tree that is fittest for them, and upon which the mother has not fail'd to place them. They grow up in a very short time; some shed their coat, and renew their skin, and alter five or six times their dress. All afterwards (I speak only of those that are chang'd or transform'd) go thro' their mean or second state, which is that of a *nymph* or *chrysalis*, that is a shell or cod; these are but different names to express much the same thing, as will be explain'd a little lower. The worm, after a time, leaves off eating, and shuts himself up in a kind of little sepulchre, which varies according to the differ-

rent species, but which, in each species, is always built in an uniform manner. There, under a cover that shelters a creature of so nice and fine a texture from all manner of hurt, he acquires a new conception and a new birth. He then receives the name of nymph, or bride, because in this state, the Insect puts on his gawdiest attire, and the last shape under which he is to appear, to multiply his species by generation. It has the name of *chrysalis aurelia*, or *golden nymph*, because the pellicle, in which it is clad, grows by degrees of a more pleasing and lively hue. It is also call'd shell or cod, because it is wrapp'd up in a skin, commonly pretty hard, and not unlike the shell of an egg, or the outward coat and skin of a bean, tho' it must be own'd, that the word *cod* is commonly made use of to signify the little bundles of thread and glue under which silkworms, and some sort of caterpillars, lie snug and hidden, when they are turn'd into nymphs.

We are come to the last state, which makes an end of and crowns the metamorphosis. He breaks out of his confinement, bursts thro' his prison, shakes his plume of feathers, unfolds his wings, unfurls his gaudy colours to the sun; in a word, the whole winged Insect displays himself and shines in all his beauty.





N^o 9. *Saturday, December 31, 1737.*

Magnus ab integro sæclorum nascitur ordo.

VIRGIL.

THE following letter, being a *dissertation upon the true year and day of the birth of CHRIST*, was, I believe, design'd, by the author, to be publish'd, by way of essay proper to the day, on saturday last. But, as it did not come to hand soon enough for that purpose, it is hoped he will excuse us for inserting it a week later than he intended. It is humbly presum'd, that a letter upon such a subject will not be thought to come out in a wrong time on this day, which immediately precedes one of the most solemn festivals, appointed by the Church, to be celebrated after that of the birth of our Saviour. Besides, this little piece appears to me to be so valuable, that I think it can never be unwelcome to the Public. For my part, I must own that were my essays any thing equal to this performance, I should not send them abroad with diffidence and fear, nor chiefly depend, as I do at present, upon the indulgence of the good-natur'd reader. I shall only add one word more; that in compliance with the modest request of the author, his name shall be kept a secret.

S I R,

ALTHO' in your introduction printed before your first essay, bearing date *November 5th*, you insinuate,
that

that you do not intend to meddle with religious controversies; yet nevertheless, I am persuaded your design is only to set aside such points of doctrine, which by some are rejected as heretical and spurious, whilst by others they are receiv'd and revered as articles of faith. But, at the same time, you do not surely mean to exclude what all parties will allow without contest, and which, besides, you may consider in a critical view, as mere matter of fact. In this light, I cannot help recommending to you a subject, in my humble opinion, well worth the inquiry of the learned and perusal of the curious; and to which you are, in a manner, invited by the approaching festival; I mean, Sir, the exact time of the birth of *Christ*. Your thoughts, at present, are not perhaps turn'd this way. Therefore, if you approve of what I have thrown together upon this head; you are heartily welcome to publish it as it is, put it into a better form, or make whatever other use of it you think proper.

There are few among those, who are conversant in these matters, but what know, that the *Christian Æra*, according to which we now reckon *A. D.* 1737; was first found out by *Dionysius Exiguus*, a *Scythian* monk, who in the VI. century sojourn'd at *Rome*, under the reign of *Justinian*; and that the characteristics of this *Æra* are Solar Cycle 10. Lunar 2. Indiction 4. which necessarily falls upon the year 4714, in what is call'd the *Julian Period*. Yet nevertheless this *Æra* was seldom or never made use of till the time of *Charlemain*, about the year 800, since when the western Church, having receiv'd it, has given it thereby such a sanction, that the endeavouring to introduce another in its stead, wou'd, I am afraid, be look'd upon as a very idle pretension. But what will not bear in practice may in theory, or rather, when there is manifestly an error, every thinking person must be glad to see it rectify'd, and no one, I imagine, can, with any reason,

reason, be angry at my design of fixing the true and exact time in which our Saviour was born.

But that those, who are not so well accusom'd to these kind of discussions, may more readily apprehend my meaning; give me leave, Sir, before I enter into the merits of the cause, to sketch out a short chronological table, which will not only serve to explain and illustrate what has already been said, but will set what is to follow in a much clearer light.

A. Æ. C. ^a

- 40 *Herod* made king by the Senate, about the middle of this year, towards the end of the CLXXXIV. Olympiad, in the year of *Rome* 714. under the consuls *Calvinus* and *Pollio*.
- 37 *Herod* takes *Jerusalem* at the end of the III. year of his reign, in the CLXXXV Olympiad, under the consulship of *Agrippa* and *Gallus*.
- 5 JESUS CHRIST, born the 25th of *December*.
- 4 At the end of March, 37 years after his first accession to the crown of *Judea*, and 34 after the second, *Herod* dies, and is succeeded by *Archelaus*.

Æ. C. I. Or First year of the *vulgar* Christian era, beginning the first of January, four whole years after the true birth of *Jesus Christ*, and about three years, nine months after the death of *Herod*, and the beginning of the reign of *Archelaus*.

These outlines or plan once drawn, we may now proceed to lay the foundation of the whole.

(a) Note; These are the Years before the vulgar Christian Era or commonly reputed Birth day of Christ.

I. It is expressly said in the Gospel ^b that *Jesus was born in the days of Herod the king*; and according to *Josephus*, this prince died, after he had reign'd, since he had made away with *Antigonus*, four and thirty years; and since he had been declar'd king by the *Romans*, thirty-seven. This is an unvaried reading in *Josephus*, both in his *Antiquities*,^c and his account of the wars of the *Jews*.^d But this is not sufficient: That we may be fully apprised of the matter, we must go upon surer grounds, and in order to know precisely where these years end, we must try to discover when they began. The discussing this point is unavoidable.

II. AND first, according to the above-mention'd Historian, ^e *Herod* was made king by the Senate in the CLXXXIV Olympiad, under the consuls *Donitius Calvinus* and *Asinius Pollio*. This was 40 years before the *vulgar era*, and if you reckon 37 complete years in *Herod's* reign, his death must have happen'd three years before *our era*. But the years of his reign are not complete. *Herod*, who according to *Josephus* ^f had been declar'd king a few months after *Whitsuntide*, died a few weeks before *Easter*. There is therefore room to think, that the historian has reckon'd these years by those of the consuls. As each year did bear the name of both the magistrates who were invested with the consular dignity, the 37 years of *Herod's* reign (being 35 complete, between two defective, consisting only of a few months) must for that very reason end the IV. year before the *vulgar era*.

(b) Matth. II. 1. Luke I. 5.

(c) XVII. 10. p. m. 770.

(d) *Bell. ult.* p. m. 1042.

(e) *Antiq.* XIV. 26. p. m. 699.

(f) *ubi supra.* 23. p. 643. & XVII. p. 11. 773.

Whilst *Herod* was hastening to *Rome* in order to be elected king by the Senate, *Antigonus* invaded the throne, and made himself master of the city of *Jerusalem*^g. But, three years after, in the CLXXXV Olympiad, under the consulship of *Agrippa* and *Gallus*, *Herod* took *Jerusalem*, the same day it had been taken by *Pompey* 27 years before. This is his second accession to the crown, whence *Josephus*^h generally reckons the years of *Herod's* reign, which, according to him, amount to 34. This would exceed our computation by a whole year; but, as we are us'd to this historian's manner of writing, we know he means consular years, whereof there are 32 complete, between the first and last, which are but of six months each. This premis'd, there is no difficulty remaining; *Herod's* death necessarily falls in with the IV. year, before the vulgar æra, where end also, as we have already seen, the 37 years since his first accession. To strengthen this our opinion it may be observ'd, that according to *Josephus*, from one siege of the city to the other, there were 27 years, altho' in reality there were but 25, which must still be understood of consular years, and justifies what we have said about this author's way of reckoning.

III. As for the time of the year, in which *Herod* died, it is pretty well known by a Lunar Eclipse, which, if we may credit *Josephus*ⁱ, was but a very little while before the death of *Herod*. According to astronomical calculations, this Eclipse must have been seen the 13th of March, and concerning this particular, those, who would be better inform'd, may consult *Scaliger* and archbishop *Usser*^k. Be-

(g) *Antiq.* XIV. 27. 656. 8. coll. XX. 8. 931.

(h) *u. s.* XIV. 27. 659.

(i) *Antiq.* XVII. 8. 768. 10. 770.

(k) *Ann.* T. 2. ad. M. 4000. *Animadv. ad Eus. chron.* p. 162.

sides, we learn from *Josephus*¹ that it was before *Easter*, that *Herod's* son, *Archelaus*, succeeded him; at least, as far as he was empower'd by virtue of his father's will, altho' it was but some months after, that this will was partly ratify'd by the *Roman* emperor.

IV. *JUDÆA* was govern'd by *Archelaus* between nine and ten years, the last year falling upon the VI. of the *vulgar æra*, as may be prov'd from *Dio Cassius*^m. He says, that *Herod of Palestine*, having been accus'd by his brothers, was banish'd beyond the *A'ps*, and his principality sequestred. The date of this year is the consulship of *Marcus Æmilius Lepidus* and *Lucius Arruntius Nepos*; which is the VIth year of the *vulgar æra* just mention'd. Now, as the Jewish prince mention'd by *Dio* is, by him, call'd *Herod*, it is worth observing, that *Archelaus* bears the same name in one of the medals collected by *Spanheim*. Besides, does not every body know, that in the *Acts of the Apostles*ⁿ, *Agrippa* is call'd *Herod*? If the second has his grandfather's, why shou'd not the first bear his father's name? But, at that time, nothing was more common among kings, than to take the name of their predecessor, especially if he was the founder of their empire, or the first of the family, or particular branch, invested with the regal dignity; as might be instanced in the *Ptolemies of Egypt* and many others.

However, *Josephus* tells us, in one part of his works,^o that *Archelaus* was banish'd the *ninth* year, in another^p; the *tenth* year of his reign.

(1) *Antiq.* XVII. 10.

(m) *Hist. Rom.* L. 55. p. 597.

(n) XII. 1.

(o) *Antiq.* X. ult. 788.

(p) *Bell. Jud.* I. 5. 1059.

This is an apparent, not a real contradiction. It has already been shown, that there were two beginnings in *Archelaus* his reign; one, at his father's death; the other, when his succession was confirm'd by *Augustus*; and between both, there was only a difference of a few months. And besides, *Josephus*, in one place, might, if I may use the expression, mean *nine* real, and in the other, following that method he so often gives the preference to, *ten* consular years. Of the first year, *Archelaus* reign'd about nine months, then eight whole years, and in the tenth, near three months. Most sure it is, that this prince cou'd not, under the consulship of *Lepidus* and *Nepos*, have reign'd, either nine or ten years, unless he had ascended the throne, in the IV year before the *vulgar era*. But if he has reign'd in this year, *Herod*, whose successor he was, must at the same time have ceas'd to reign. And accordingly, it was in this year that *Herod* died.

V. It may be further added, that immediately after *Archelaus* his banishment, *Judea* was reduced into the form of a *Roman* province. This happen'd 37 years after the battle of *Actium* according to *Josephus* ^q. And as this year, in his manner of computing, falls in with the VI. of the *vulgar era*, hence it follows, that *Dio* has exactly specify'd the time of *Archelaus* his banishment. And consequently, this prince having held out between nine and ten years, he must certainly have succeeded his father *Herod*, in the IV. year before this *era*; or we must give no credit to the joyn't testimonies of *Dio* and *Josephus*.

VI. BESIDES, *Philip*, ^r the only man of

(q) *Antiq.* XVIII. 3. 794.

(r) *ubi supra.* 5. 803.

worth and honour in the *Herodian* family, died the twentieth year of *Tiberius*, which answers to the XXXIV. of the *vulgar era*, after he had been *Tetrarch* 37 years. This we learn from *Josephus*, ' And it plainly shows that *Philip's Tetrarchy* had begun in the same year with *Archelaus* his *Ethnarchy*; the year, wherein it has been so often prov'd that *Herod* died.

VII. SEVERAL other arguments might be offer'd to support our present opinion. But, as they wou'd only serve to confirm what, it is presum'd, has been already fully prov'd, they wou'd be superfluous and needless. Therefore, without dwelling any longer upon this head, we shall proceed to the *day*, and this perhaps may not be so easy to determine as the *year* of the *birth* of *Christ*, which we have shown to be the IV. year before the *vulgar era*.

VIII. ALTHO' some doubts may arise concerning the 25th of *December*, yet, as it is an ancient tradition, it is by no means to be slighted. However, I wou'd not lay so great a stress upon it as *St. John Chrysostom*, ' who grounds his assertion upon *Zechariah's* high priest-hood. His discourse there-upon shows he was a man of much subtlety and penetration as well as uncommon learning; but with due reverence be it spoken, he has not been guided herein by the true spirit of criticism, and the arguments, he makes use of, favour more of art than of sound reasoning. This tradition, as he tells us himself, he was utterly unacquainted with, ten years before; and there is very good room to think, it was far from being generally

(s) *Antiq.* XVII. 10. 770. 13. 785.

(t) *ΕΙΣΤΗΝ ΓΕΝΕΣΙΣΤΗΝ ΑΝΤΙΠΑΡ.* Hom. 35.

receiv'd in the time of *Clemens Alexandrinus*, from whom we learn, that the birth of *Christ* was by some placed in the month of *April*, and that among his cotemporaries, there were men of great abilities, who fix'd it to the 25th of the month *Pachon* ^u which answers the 19th of *May*. What gives a greater appearance of probability to this opinion is the circumstance of the flocks being out in the fields, during the night-time ^w. But yet, this is far from being satisfactory. For I am apt to think that at all seasons of the year, no danger cou'd be apprehended from such a custom, in such a climate as that of *Judea*, where from sowing to harvest-time, they did not use to reckon above four months, so that it had even pass'd into a proverb.

Cou'd we rely upon the Apostolical Constitutions^x, it wou'd add great weight to the evidence of *St. Chrysostom*, which, in some manner, is supported by that of *Clemens* himself, who was not, it seems, of the same opinion with his learned friends, for he says, "That, from the birth of the Lord to the death of *Commodus*, were elaps'd one hundred and ninety four years one month and thirteen days." Now, as *Commodus* died the 1st of *January*, and that *Clemens* reckons after the manner of the *Egyptians*, whose year consisted of 365 days without intercalation, this wou'd agree with the common tradition, that *Christ* was born on the 25th of *December*.

As for *Chrysostom*, we learn from himself, that he had receiv'd this tradition from the *Latins*. Accordingly, we find it is observ'd by *Ambrosius* in

(u) I. *Stromat.* Consul. *Scaliger. Em. Temp.* p. 543.

(w) *Luke* II. 8.

(x) v. 13. *αναδιπτερον τωνων μνησθ.* where note; that, in the following chapter, *April* is call'd the 1st month; so *December* is the 9th according to the custom of the *Jews*.

his sermons upon festivals ^y which follow one another in order, viz. *Christmas*, the *Circumcision*, *Epiphany*, &c. Now, as the middle festival fell upon the *first day of the year* ^z, it is plain that the first festival must have been a week sooner. Upon the whole, from what he says it cannot be gather'd, that he was the inventor, but rather that he conform'd himself to the custom then in use, inasmuch that even among the *Jews* and *Heathens*, they were won't, after the generality of *Christians*, to call *Christmas*, the *new Sun* ^a.

It must be own'd that *Erasmus*, whom none will deny to be a skilful judge in these matters, having a great value for *Ambrosius*, and a very mean opinion of these sermons, wou'd have them reject-ed as spurious and unworthy their reputed author. There are others, that are thought to have some knowledge this way, who are not so very nice and take them to be the genuine work of *Ambrosius*. But this dispute may be laid aside as not very material. For (as it has already been said) it appears plainly from *Chrysostom*, who flourish'd but five and twenty years after *Ambrosius* ^b and died only ten years after him, that in his time, this tradition did not bear a very old date. However, it must be acknowledg'd, that great care is to be taken, in distinguishing rightly between the tradition and *Chrysostom*'s arguments to support it. These might be light and groundless without hurting the tradition itself, which might stand upon its own bottom.

As for more modern opinions, even those of the freshest date, it is presum'd they are not to be depended upon, altho' we may be indebted for some

(y) *Tomo m. V.*

(z) *Calendas Januarias.*

(a) *Natalis — Solem novum, &c.*

(b) *Ambrosius* died in 397. and *Chrysostom* in 407.

of them to men of great parts and learning. For after all, considering the inability we labour under of fixing with any certainty the *real day*; would it not be better to remain contented with the *nominal day*, as that, which has receiv'd a kind of solemn sanction from custom, and for which a long prescription and right of possession may be pleaded? At the same time, it must be suppos'd, it neither contradicts nor destroys any of the known circumstances of the history of our Saviour, but on the contrary, they agree much better with this hypothesis than with any other; and as this assertion cannot, I believe, be call'd in question, we may rest satisfy'd with it, till the truth be better known.

Upon the whole, it is not properly the day itself, in an exact chronological precision, that we are bound to keep and celebrate; it is the blessed event itself, which at all times deserves, from all who call themselves Christians, the most religious praises and accumulated thanksgivings.

I am

S I R,

London, Decemb.

21, 1737.

Yours, &c.





N^o 10. Saturday, January 7, 1737-8.

*Solæ communes natos, consortia tecta
 Urbis habent, magnisque agitant sub legibus
 ævum;
 Et patriam solæ, & certos novere penates.*

VIRGIL.

MY chief intention, in what I publish'd the week before last, was to shew, that insects are not so contemptible as they are generally thought: I endeavour'd, at the same time, to give a general notion of this branch of natural knowledge to those who were wholly unacquainted with it. In this paper, I shall more particularly speak of one sort of these little creatures, that form a kind of body politic, and seem to be influenced by laws, as well contriv'd, as those of the best regulated societies amongst us. Their labour turns wholly to the advantage of the public: They are all of one mind, have no selfish views, neither do they know any other distinction, but what nature or the necessary support of their little state requires. They are perfectly free; for they have no dependance, but upon those laws they constantly follow: They are perfectly happy; for their mutual good offices and respective employments never fail producing public plenty, which diffusing its self equally among all the members of their society, answers all the ends of private wealth. Where can we find such a disinterestedness
 and

and good order among our own species? and, yet, it may be daily seen in a *Bee-hive*, which might more properly be call'd a republic of *Bees*.

Of these there are three sorts. First, the common Bees, who make up the bulk of the nation, and appear to be neither male nor female; they have a trump, or pumping pipe, to work withal, and a sting, to repel the invaders of their property. Next are the Drones, of a darker colour, and one third longer and bigger than the Bees. Of this kind, a hundred, or more, may be found in a middling hive of seven or eight thousand Bees, and so proportionably in a more numerous hive. Lastly, there is a third sort, still larger and stronger than the drones, and arm'd with a sting, like the common Bees. Of these there is but one in a hive, or at least but one for each swarm, or company of younger Bees, that from time to time leave the hive in order to settle a colony abroad. Whether this Bee of a superior size shou'd have the Name of king, that was given to it by the ancients, or be call'd the queen, as is pretended by several learned modern authors, is not yet decided. For my part, I must own I am of the opinion of these last; for, by making use of a glass-hive, they have observ'd this royal Bee, to go from cell to cell, in each of which, after her withdrawing, was found a small egg; whence they conclude her to be the female of the species. In this manner, she lays several thousand of eggs, and by means of two or three other Bees of her kind, she may see her children's children, to the number of eighteen thousand, all sprung from her, in the space of one summer. Her own cell, the highest of all, she leaves but very seldom. She advances with a solemn majestic gate, attended by the drones, and sometimes by all the rest of the Bees. As soon as she appears, there are great rejoycings in the hive; every body runs to meet her; the Bees all cling together by intangling their feet one in another. By this means

they form a kind of veil or curtain, drawn on purpose no doubt, to hinder the inquisitive observer from prying into the business of propagation, which all the while is suppos'd to be going forwards.

*For higher of the genial bed by far
And with mysterious reverence they deem.*

The drones are thought to be the chief officers employ'd in this ceremony; what else shou'd they be good for? they are fit neither for labour, nor defence: 'They have all, 'tis true, in their belly, a bottle of honey like the other Bees; but there is this essential difference. In the common Bees, this bottle has a little pipe, reaching to the neck, by the means whereof they deposit their honey in the public stores; but in the drones, there is no such pipe. Besides, those, who by the help of good glasses have been at the pains of dissecting them, tell us, they have plainly discover'd they were duely qualified to be husbands to the queen, or rather, child-getters to the common-wealth.

As for the work-men, or common Bees, their body is by two threads separated into three distinct parts, the head, breast, and belly. The head has two jaws and a trump or pumping pipe. The motion of the jaws, as they close or open, is from left to right, or sideways; these are of use to them to lay hold on the wax and to knead it. The trump, or pumping pipe, is pretty long, peaked, and very supple and easy to be mov'd; this enables the Bee to dip it into the very bottom of flowers, in order to pump up and collect the scatter'd juices, and carry off her load; but as this trump, were it always extended, might easily be broken, and wou'd be subject to a thousand little accidents, it is, for this reason, made up of two pieces, join'd together by a spring, so that it may be shortened or folded up; it is moreover secur'd by the help of four scales that inclose it on all sides.

To the breast are fastened their six legs, and four wings; two large ones, and two smaller, that are of use, not only in flying, but wherewith to make a noise or buzzing, in order to give notice of their arrival and departure, and chear one another as they work. At the end of their little paws, or legs, are two small hooks, somewhat like a reaper's sickle; they are of great service to the Bee to catch or hang by, and, that she may walk with more ease, they are laid upon two cushions of a soft spongy substance.

The Bee's belly has six rings, that are shorten'd or lengthen'd by sliding one over the other: The inside consists of three parts; the intestins, bottle of honey and sting.

The intestins, as in all other animals, serve for the digestion of food; the bottle is as transparent as glass, and contains the honey collected from flowers by the Bee, whereof a small quantity remains to nourish her, but the best part is carefully laid up in the cells of their warehouse, to sustain them in winter. The bottle of gall, or venom, is at the root of the sting, thro' which, in case of need, as thro' a pipe, the Bee pours some drops of it into the wound to increase the pain.

The sting its self consists in three parts; a sheath or scabbard, that is sharp-pointed, and is slit a little lower than the point, in order to leave a passage free for the venom; and two darts, whose sides, like a bearded arrow, have little spikes sticking out of them, which frequently hinder the Bee from pulling her dart out of the wound; especially, upon any sudden motion in the persons that are stung: but if they have patience enough to be quiet, she depresses and lays close to the dart these lateral points; this enables her to pull out her dart with ease, and causes less pain. The sheath itself being pretty sharp, lays open the wound, then the darts strike in, and increase it, which is follow'd by the effusion of the envenom'd liquor. Tho' this sheath holds by muscles,

sufficiently strong to enable the Bee to draw it out again, yet, it is often engaged so deep, that both the muscles and sting remain in the wound. This, together with the shedding of the venom, causes a fermentation and swelling, that will last several days, but that may be prevented, by immediately taking out the sting, and widening the wound, so as to give it air, and room for the venom to run out. So industriously has nature provided these little creatures both with arms and tools!

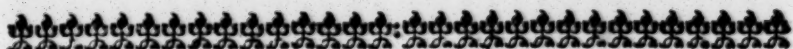
In order to make use of them, they generally divide themselves into four distinct troops, or bodies. The first are sent abroad to gather materials for the building of their cells, as glue and wax, which they find upon divers kinds of flowers; some, that are employ'd at home, rough-hew, and begin to fashion the whole; others are busied in polishing, taking away what exceeds, and finishing. The last are purveyors for those that are at work and bring them their victuals. They are wonderfully neat and exact, and so diligent, that a nice observer has taken notice, that a honey-comb, with a double row of cells, of a foot long and six inches wide, had been finish'd in a day, and afforded sufficient lodging for three thousand Bees.

The bottom of these cells terminates in a point, in order to receive the little egg, and to gather the heat, as in a common center: they are not perfectly round, but are made up of several angles or corners, that are joyn'd side to side, and tally exactly one with the other. The combs are all, of two rows of cells, at the back of one another: They are perpendicularly suspended, with an interval between them, wide enough for the Bees to pass thro', and yet, sufficiently narrow, to preserve what degree of heat may be requisite. By this means is hatcht the little worm inclos'd in the egg. As soon, as he is crept out of it, he has honey brought to him, from time to time, by a Bee. After ten or twelve days, when
it

it may be suppos'd he has had nourishment enough, one of the Bees stops up, with wax, the mouth of the cell. At a fortnight's end, the secluded worm sheds his skin, which cleaves to the walls of the cell, and nicely fits all the angles or corners of it. For two summers running, each cell serves for three or four worms one after another, and is every time render'd, both stronger and warmer, by the addition of this new set of hangings; the next, or opposite cell, being furnish'd in the same manner, the whole building grows thereby more solid and compact. It must indeed be own'd, that so many skins clapp'd one upon another must in time very much streighten the cell; but in this case, the Bees, that are admirable managers, put these cells to another use: they lay up their honey in them, and, those that heretofore serv'd for store-rooms, they leave their eggs in. As soon as the worm has dispos'd, in this manner, of his skin, he is turn'd into a nymph, and the nymph into a Bee, that breaks thro' the wax covering, dries her wings, wanders from flower to flower collecting wax and honey, and readily performs all the duties of her station.

If this account is not displeasing to my readers, I shall, in some other paper, endeavour to entertain them, with as many other particulars of the policy of this little common-wealth, as shall come to my knowledge. In doing of which, I shall not scruple borrowing several useful hints, as I have already done, from an ingenious *French* author, whose works * are not only highly valued abroad, but have, as I am inform'd, been translated into *English* and receiv'd with applause here among us.

* *Speſtacle de la Nature.*



To the Printer of the Weekly Essay or
Middlesex Journal.

S I R,

IT is with no small satisfaction I have perused your paper upon Insects bearing date *December 24th*. What you say in the beginning of it, about our comparative way of judging of things, seems to me to be very just and reasonable; but you do not stop here, nor barely content yourself with the effect; but you trace it up to the cause. You are certainly right in your assertion that to self-love must be attributed this wrong way of judging; and I was also mighty well pleas'd with your conclusion upon this head. That, *both what is infinitely great and infinitely little proves equally the infinite wisdom and power of the maker. The smallest pebble is form'd by the same causes as the biggest rock, the lowest shrub owes its growth to the same principle of vegetation, as the tallest oak, and all that is requisite to animal life is to be found in a mite as well as an elephant.*

But in this I think you might still go farther. For if we consider matter as having parts, we must apprehend these parts to belong to it of necessity, and that the least particle (be it the smallest we can conceive) when upon a plane (or flat even superficies) must at the same time it touches it in one part, not touch it in another. Hence it follows, that the smallest portion of matter consists of parts; and as all matter has its particular figure, be it ever so great or ever so small, we must conceive, that the greatest

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as well as the smallest have their proper simetry, shape and proportion, and that not only these gross bodies which we may see with our naked Eye, but infinite numbers of others very small, which escape our sight, and were not known at all by the ancients; as for example the little eels which spring up almost in a moment in the best sort of vinegar, set in the warm sun, nor had we known of these small creatures to this very day were it not for the happy invention of the microscope. The mould upon the cover of a book have been long observ'd, and also a mite, which is much less than a grain of sand, is an animal, because we can see it move along; but it is since the invention of microscopes that we can with pleasure see, that not only they are so, but that every speck and mould is a little garden, covered with plants, every one of which has its stalk, leaves, buds and flowers: and that a mite has its back covered with scales; that it has three feet on each side and two black spots in the head, which are supposed to be the eyes, because if a point of a needle be put in its way, it will turn aside; and since such small parts are seen by the help of a microscope, we may reasonably judge, that there are parts incomparably less yet, which escape all our senses, all our inquiries and exceed even our imagination itself. And in order to clear this matter a little more up by example; since a mite walks along, it must have legs these legs must of necessity have joints; in order to move these joints there must be muscles, nerves and tendons; and in these nerves fibres, such as we see in those of larger animals, or at least something equivalent to them. And if we could carry our consideration yet further, and speak of the heart, blood, brain, and animal spirits, we should be quite at a loss and forc'd to confess that our imagination is unable to comprehend or represent the extreme smallness of the least parts of which a mite is composed.

Such

Such hints as these might (I think) by an able hand be further improv'd. In the mean while, I can assure you your paper is very much valued in these parts, and as for me in particular I think, my self oblig'd to let you know that I am,

S I R,

Y O U R S.



N^o II. *Saturday, January 14, 1737-8.*

*Ducit Amazonidum lunatis agmina peltis
Penthesilea furens, mediisque in millibus ardet,
Aurea subnectens exertæ cingula mammæ,
Bellatrix, audetque viris concurrere virgo.*

VIRGIL.

- The following letter, coming from a lady, requires no apology. I shall insert it, word for word, just as I receiv'd it.

S I R,

‘ I T was with a good deal of pleasure I observ’d,
‘ in reading your first paper, that you had an
‘ eye to the improvement and amusement of our
‘ sex. This has made me more diligent in the pe-
‘ rusal of those sheets, you have since publish’d, than
‘ perhaps,

perhaps, I shou'd otherwise have been. You must know, it was always my opinion, that women were as well qualify'd for polite learning as men, and that the active was the only part of life, as cou'd be said to be out of our sphere. But I have lately found, as to this last particular, I was very much mistaken. For I happen'd, a day or two ago, to dip into a *French* book (which I refer you to) that gives an account of warlike women, who behav'd themselves, in several encounters, with as much spirit and gallantry as the best man of you all. I was not, you must think, a little pleas'd with a relation so highly redounding to the honour of my sex; and thought that if I communicated it to you, you might work it up, so as to make a very good weekly essay out of it. You might add a great many things, as if there was any among the ancients, and when they liv'd, and what conquests they made, and if they did not make a better use of their power than you men do. All this methinks wou'd be very curious and instructive. Then, you might examine how far such a practice might be useful and convenient if reviv'd in these times; and especially, whether an army of women, here among us, wou'd not as well serve all the purposes of the court, without giving so much uneasiness and jealousy to the country party, as one of men; by which means you might in some measure reconcile them. What cou'd be a prettier entertainment for the youth of Great Britain, or a greater incentive to noble actions, than, on a fine day neither rain nor sunshine, to see their countrywomen, properly arm'd and equipp'd, go thro' their exercise. I imagine it wou'd be equal, at least, if not superior to any of our reviews. For my part, I cannot, for my life, forbear thinking, that without vanity, I shou'd cut as good a figure at the head of my company, with my half-pike in my hand, cockade in my hat, and tuck'd up curl'd hair,

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' hair, as the smartest young officer in the guards.
 ' Then, Sir, suppose we were to set a project on
 ' foot to raise a considerable body of tall women, who
 ' wou'd still appear much cleverer and taller, did we
 ' dress them in the high commodes that were for-
 ' merly worn by our grand-mothers. I am persuad-
 ' ed they wou'd be a sight tantamount to the king of
 ' Prussia's tall grenadiers, and wou'd be of as great
 ' use to *England* as they have been to his country,
 ' and be no less known to posterity, by their re-
 ' nown'd exploits and great achievements, than the
 ' invincible troops of that humane and heroic prince.
 ' If you will put in order these loose hints, I do not
 ' doubt but they will be of great service to you, and
 ' I give you my word, it shall never be known you
 ' were help'd to them by,

S I R,

Your humble Servant

AMAZONIA.

In the book referr'd to by my fair correspondent,
 and quoted at the bottom of the page * I have found
 in substance what follows. In an irruption of the
 inhabitants of the adjacent parts of mount *Caucasus*
 into *Muscovy*, they attempted to invade *Mingrelia*.
 After a sharp engagement, being over-power'd by
 numbers, they were at last intirely defeated and most
 of them left breathless upon the spot. What is most
 remarkable is that among the dead were found as

* *Lamberti relat. de la Mingrelie & de la Colchide.*

many bodies of women as of men. The victors brought to their Prince, at *Dadian*, among the rest of the spoils, the arms of these women, as the most considerable part of their trophies. They were very much beautify'd, and adorn'd with all that care and exactness so peculiar to the fair sex in relation to dress: Their helmets, that were painted, were set off with party-colour'd plumes of feathers: Their cuirasses and brassets were made of several thin plates of iron, which did lie upon and run into one another, so that they easily follow'd every motion of the body: To the cuirass or breast-plate was tied with ribbons, dispos'd in festoons, a kind of petticoat, that did not reach lower than the calf of the leg, made of woollen stuff, not unlike our serge, but of so glowing and lively a red, that it cou'd hardly be discern'd from our finest scarlet cloth. Their buskins were as so many spangles, not of gold, but of some metal very much like it, bored thro', and fastened or strung together with small chains of goat's hair, weav'd with wonderful skill, and of the greatest fineness and delicacy: Their arrows were four palms long, painted or gilt, and headed with the most curious kind of steel, not sharp-pointed, but of about three or four lines in breadth at the end, like the edges of cizars.

These *Amazons*, it seems, are often in war with the *Calmuck Tartars*. The prince of *Mingrelia* promised his *Circassian* soldiers great rewards, cou'd they bring him one of these women alive, if ever in such like engagement, any of them happened to fall in their hands.

This account agrees pretty well with what I have met in *Chardin's* travels, who speaking of his voyage to *Colchis* expresses himself in this manner, concerning a kind of *Amazons*, who do not live far from those parts.

I have had says he, a good deal of talk upon this subject with the king of *Georgia's* son. He told me

among other things, that beyond *Caket*, about five days journey towards the north, dwells a great people, who being, by their situation, inclos'd on all sides, and as it were, shut up within mount *Caucasus*, are known only by their perpetual wars with the *Calmuck Tartars*. For it is observ'd, that all these nations, that inhabit *Caucasus*, seldom or never live in peace, and little is to be got by treating with them, for they are a wild faithless people, not to be restrain'd by laws and under no government. This obliges that king to be upon his guard, and never to leave his frontiers, that he may always be in a readiness to put a stop to their sudden invasions.

The prince added that he was of opinion, they must be descended from the wandering *Scythians*, as well as the *Tartars*, the *Turcomans*, and the *Arabians*. That their custom was to confer the sovereign authority upon women, in the same manner as the people of *Achin*, in the island of *Sumatra*, and those of *Borneo*. And that their queens were attended and waited upon by persons of their own sex who follow'd them every where. It is easy to conceive that it was absolutely necessary for these women-attendants, to ride and carry arms, as well as men. And indeed, in several places, but especially in the *East*, women in relation to horsemanship are not at all inferior to men, and it is the custom there for princeesses, to wear daggers by their side. As for their cutting off their breasts, this, without injuring truth, may be look'd upon as a fictitious invention of the *Greeks*. These inhabitants of *Caucasus* are the ancient *Huns* or *Alani*, and it is by a Nation of Amazons that this little kingdom of *Caket* has been ravag'd in our time. Both ancient and modern Geographers place them in the same part. To this day, several people bring news from thence, and I was shewn, at the prince's, a large woollen coat, of a peculiar cut and make, which was said to have been worn by an *Amazon*, who had been kill'd near *Caket*

ket during the last war. We may soon expect something surer concerning these celebrated female warriors, since the *Capuchins* of *Tefis* intend to go and establish a mission there.

Thus far Sir *John Chardin*; but I cou'd never hear what had been the success of the *Capuchins* of *Tefis*, nor what farther discoveries they had made: and indeed I am apt to think, that unless they had sent some of their *Novices*, the number of their proselytes cou'd not be very considerable. Or rather, wou'd not a detachment of tight well built dragoons, pick'd out of every regiment for their strength and agility, prove the best missionaries in that, as well as in this part of the world? No doubt, they wou'd, meet with as much success in this undertaking, tho' they shou'd not make use of fire and sword, nor be quite so cruel, as in that honourable expedition, they were employ'd in by the *grand monarque*, against his protestant subjects. Upon the whole, I am not without fear, that those venerable fathers might be taken by those ladies, unus'd to such sights, for *European* he-goats, whom it cannot be deny'd they very much resemble, were it only by their slovenneis and long beards, and so confin'd to the stables, to keep the bad air from the horses; a service these creatures, I mean he-goats, are generally put upon, all over the *East*.

But *Africa*, as well as *Asia*, claims the honour of having produced women of a military genius, if we may trust to the following account.*

A queen of *Angola*, whose name was *Anna Ginga*, having been dispossest'd of part of her realms by the *Portuguese*, made an alliance with the *Dutch*, and by their assistance, drove the others out of the kingdom of *Angola*. But having found by experience that the neighbourhood of

* *P. Lobo Hist. d'Abyssinie.*

those, she had call'd in, was not more advantageous to her than that of the *Portuguese*, she treated with these last, and by her skill, both in war and negotiations, she not only recover'd her kingdom, but enlarged her dominions, and saw herself, before her death, sovereign of an empire 400 leagues in length, in the midst of *Africa*.

She personally signalis'd herself in several battles, both against the *Europeans* and those of *Congo*, and what is more surprising, or rather shocking, if we may take in a literal sense the words of the learned *Vossius*,* she has been seen drunk with the blood of those she kill'd.

There is another circumstance not so strange and horrible, tho' no less remarkable. In imitation of those potentates, who look upon a seraglio, fill'd with handsome women, as an appurtenance of their princely dignity, she, on her side, had one well stored with a set of brawny young fellows, no less than sixty in number, says my author. She died at the age of 80 in 1660.

Had I room left in this paper, I shou'd, with a great deal of pleasure, comply with the request of my fair correspondent, and endeavour to answer her queries the best I cou'd. Such a subject wou'd, no doubt, afford matter enough for speculation, and be of no small entertainment to the curious and inquisitive reader. For this reason I intend to take it up again some other time. In the mean while, I shall conclude with a short and summary account of the ancient *Amazons*, such as it is given by *Justin*.†

Two princes of the blood Royal, among the *Scythians*, were by a prevailing faction expell'd their native country. Follow'd by great numbers of bold and indigent youths, they reach'd the con-

* *De Flumin. orig.* † II. 4.

finer of *Cappadocia*, and settled upon the banks of the river *Thermodon*. Here they liv'd some time upon the spoils they took from their neighbours, who, at last, joyn'd in a league against them, surpris'd them together with their forces in an ambuscade, and put them all to the sword. Their wives seeing themselves depriv'd of their husbands as well as country, instead of sinking under so great a calamity, assum'd an undaunted courage, rush'd to arms, and having at first repuls'd the enemy, soon invaded his frontiers and turn'd the defensive into an offensive war, which ended in a total extirpation of those they look'd upon, as the murderers of their husbands. And finding by what necessity had forced them to, that brave women needed not the protection of men, they resolv'd to live without them, looking upon wedlock as a voluntary slavery.

But as these exalted sentiments did not exempt them from death; and they foresaw that in a short time, for want of successors, their wise maxims and regulations must come to nothing; in order to prevent so great an inconveniency, they receiv'd, at stated times, the visits of some of the neighbouring nations, by which means they recruited their numbers. The boys, they destroy'd, as soon as they were born; the girls, they brought up, not to spinning and other housewifely employments, but to riding, hunting, and the exercise of arms; having taken care, when infants, to tear off their right breast, least it shou'd hinder the ready use of the bow and arrow.

They had two queens, *Marpesia* and *Lampeto*; who, each in her turn, defended their boundaries and had the management of military affairs; and who, in conformity to the superstitious custom of the age they liv'd in, gave it out, that they were the daughters of *Mars* the god of war. After several victories obtain'd, and great things perform'd,

form'd, of which the building of *Ephesus* was none of the least, *Marpesia*, with that part of the army under her command, was cut off in an insurrection of the barbarous nations against her. Her place was fill'd up by her daughter *Otrera*, who, says our author, besides her thorough knowledge of the art of war, stands upon record the wonder and admiration of all succeeding ages, for the constant preservation of her chastity. So differently did one think in *Justin's* time from what one does in this: For what lady wou'd have it inserted in her panegyric that she liv'd and died an old maid?

After this virgin-queen, whose history is intermixt with several fabulous stories which I purposefully omit, reign'd *Penthesilea*, who went to the assistance of *Troy* against the *Greeks*, and distinguish'd herself very much among the heroes of that siege. But, at last, herself being kill'd, and her army dispers'd, those few, that had remain'd in the kingdom, but with much difficulty defended themselves against their enemies. However the *Amazons* subsisted, as a nation, till the time of *Alexander* the great. Their queen *Thalestris*, the fittest match in the world for him, spent, at her own request, thirteen days, or rather, thirteen nights, with that conqueror. After which, she retir'd into her kingdom, and neither she, nor the people she govern'd, have been since heard of.





N^o 12. *Saturday, January 21, 1737-8.*

*Higb on a throne of royal state, which far
Outshone the wealth of Ormus, and of Ind;
Or where the gorgeous East, with richest hand
Showers on her kings Barbaric pearl and gold,
Satan exalted sat —*

MILTON.

THE peculiar beauty of the simile, I have chosen for a motto to this week's paper, taken from the beginning of the second book of *Paradise lost*, is not, I believe, perceiv'd by many of those, who read it, for want of knowing a particular custom alluded to by the poet, which is as follows. In the great *Mogul's* dominions (call'd by most Geographers *proper India*) it is usual for that Prince, on a fixt day of the year, I think, it is his birth-day, to be put into a pair of scales and weigh'd with great solemnity; and if he proves heavier than the year before, his subjects make as great rejoicings, as if he had obtain'd the most signal victory; and shew as much satisfaction, as if he govern'd his realms with the greatest prudence; these people being of opinion, that a man of weight in the literal, must be so too in the figurative sense, and that a statesman's wisdom increases proportionably to his bodily bulk. Whilst the Monarch, in great

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state,

stare, sits in the scales, the princes and princesses of the blood, the great officers of the crown, army and household, ministers of state, &c. strew him with gold and pearls, as heretofore the ancient *Greeks* strew'd, with flowers, the conquerors at the olympic games. This is the shower meant by *Milton*. I have been led into an account of it, by a letter from an unknown correspondent, who seems to be a great admirer of what is call'd by the poet the *gorgeous East*. Whoever this correspondent may be, I hope, he will not be offended at the liberty I have taken of rectifying some small mistakes, retrenching a few compliments, for which I thank him, but that the public has nothing to do with, and in short, altering his letter so far, as to make it appear in the form of one of my own essays.

AMONG all the despotic princes, mention'd by historians and travellers, none are more powerful and wealthy than the sovereigns of *India*; and of these, none more talk'd of than the renown'd *Timur-bee*, generally known under the name of *Tamerlane*. This prince was not (as has been presumptuously asserted and credulously believ'd) at first setting out into the world, a shepherd, or a public robber; but on the contrary, a prince of the royal blood of the *Moguls*, descended from *Genghiz-can*, one of the greatest men and most illustrious princes that ever fill'd the throne of *India*. Between him who died in the year 1226 and *Timur-bee* who was born in 1336 during the space of one hundred and ten years reign'd over *India* twenty-one emperors, the issue of *Zagatai-can*, son of *Genghiz-can*. Hence it is plain, that nothing can be more contrary to truth than that prevailing error, that *Tamerlane* was a kind of knight adventurer, a mere king *Theodore*, whom his boldness and enterprising genius has rais'd from

from the lowest to the highest rank. The authority, upon which this my opinion is grounded, is the history of that monarch, written in *Persian* by a cotemporary of his, whose name was *Chereffedin-Ali*, and translated from the original into *French*, by *Monsieur Petis de la Croix*, arabic professor, and interpreter of the Eastern languages to the *French* king. This is a very valuable work as being not only a very exact narrative of the actions of *Tamerlane*, but also as it contains, what I believe can be found no where else, a very particular account of the manners, politics, and art military of the *Indian Tartars*.

Tamerlane was a lover of justice and encourager of learning. But a fondness for war was his chief characteristic, and what has distinguish'd him most are his conquests. He extended his dominions on all sides, forced the famous wall of *China*, and subdued the greatest part of the Eastern world. But the chief and most considerable of his victories was that which he obtain'd over *Bajazet*, Sultan of the *Turks*, whom he took prisoner. The *Turkish* historians enrag'd at the shameful defeat of their Sultan, and the glorious success of his adversary, invented, out of envy and in order to asperse *Tamerlane* with cruelty, the well known fable, that he had confin'd *Bajazet* in an iron cage, obliged him to stoop, in order to make use of his neck, as of a foot-stool, to get on horse-back, and expos'd him to the laughter and contempt of the rabble. But no such thing is to be found in the book above-quoted. Besides, it contradicts the general custom of the East, where, in order to render despotic sway more venerable in the eyes of the vulgar, sovereign princes treat one another with the utmost honour and respect; and when any of their noble competitors are, by them, made captives, they generally order them to be presently executed in private; or else confine

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them

them for life to some palace or seraglio, where they are generally serv'd and attended in a manner suitable to their birth and dignity.

To this political regard shewn by one potentate to another, in *Europe*, as well as *Asia*, may perhaps be attributed the so much admir'd conduct of *Edward*, the black prince, in relation to *John*, the *French* king, upon whom he waited at table, the very evening of the day, in which, he had taken him prisoner, at the never to be forgotten battle of *Poitiers*^a and whom he afterwards follow'd at his public entry in *London*, himself upon a little pad, and the captive-king upon a fine manag'd war-horse, richly adorn'd with costly trappings. This uncommon behaviour in so young a prince has been very much extoll'd by most historians (and by *Barnes* and *Rapin* in particular) as the greatest instance of modesty, good nature, generosity, magnanimity and the like. And far be it from me to detract from the praise justly due to that heroic youth, than whom a wiser nor a braver never wore the princely crest^b nor serv'd a king and a father with more honour and fidelity. All that I wou'd hint at here is, that there might be a mixture of policy and greatness of soul in this prince's conduct, who being the son of a king, and himself in all probability to ascend a throne, was willing to shew his subjects in what manner kings were to be treated, however depress'd by

(a) This Battle was won by the English over the French in 1356. See RAPIN'S Hist. of ENGLAND, Book X.

(b) The prince of Wales his crest, being three ostrich's feathers, with this motto ICH DIEN, I serve, was embroider'd upon the king of Bohemia's banner, at the Battle of Crecy, in 1346; which was won of Philip of France by Edward the Third. The king of Bohemia being slain in the heat of the fight, his banner was brought to Edward, the black Prince, who had very much distinguish'd himself during the whole action, and who ever after in memory of the day wore that crest which has been kept by all his successors. See Rapin.

fortune; and to persuade them of the truth of this maxim, *debilitatam majestatem nunquam intire*, that the majesty of kings, may be weaken'd, but can never be intirely destroy'd.

But to return from whence we digress'd. The degenerate successors of *Tamerlane*, by their utter neglect, both of civil and military affairs, brought that empire, to the lowest scorn and contempt, which he had rais'd to the highest pitch of glory. They took more delight in the bath than in the field, in the women's apartment than in the council chamber; they gave up those hours to softness, dalliance, or more brutal pleasures, which they shou'd have spent in the cabinet, with their ministers; in the camp, with their soldiers; or in a public audience, administering justice to their subjects. Thus they continued meer pageants of state, the outsidcs of kings, cyphers, that fill'd up the vacancy of the throne; till, at last, *Aureng-zeb*, a man of a daring and active spirit but of deep dissimulation, abhorring the effeminacy of his predecessors distinguish'd himself by his bravery, but more still by sacrificing to his towering ambition whatever came in competition with that favourite passion. The prince to whom he ow'd his birth prompted by his resentment for some injuries, he cou'd not brook, rebell'd against his father and emperor, and attempted to usurp a crown which wou'd have quietly descended to him after his parent's death: for he was actually in arms when the old king died; those, to whom was entrusted the management of public affairs, well knowing that *Aureng-zeb's* father was not their friend, proclaim'd *Bulloquei*, grandson of the deceased king, whom they intended shou'd reign in his stead. The enraged prince, routed the forces of *Bulloquei*, pursued him, took him prisoner and strangled him, and was universally acknowledged as great *Mogul*, under the name of *Chah-Jehan*. This

This monarch's reign was peaceable, until his four sons, *Dara*, *Sujah*, *Aurengzeb*, and *Morat*, imitating their father's conduct, grew rebellious, each of them separately aspiring to the throne. *Aureng-zeb*, being a greater proficient in the art of dissembling than his brothers, thought he cou'd best hide his ambitious designs under the coarse garb and humble demeanour of a poor Faquir, or mendicant Fryar; bidding in all appearance, farewell to the pomp and grandeur of the world. In the mean while, he made use of all his cunning to exasperate his brothers one against another; in which he succeeded so well, by insinuating groundless suspicions, and fomenting mutual jealousies, that in a short time, the three princes took up arms, without knowing what they were about to undertake, or being able to assign a reasonable cause for so doing.

During these intestine broils, *Aureng-zeb* adher'd to the weakest side, declaring that he was bias'd by no private views, and that he had only at heart the public welfare and the restoring the kingdom to its former state of tranquility. In the mean time, by his winning and affable behaviour, seeming disinterestedness, and engaging promises, he gain'd the friendship of most of the lords or *Omraks*. When he thought himself strong enough, he threw off the mask and no longer conceal'd his pernicious designs. Then did his brothers discover but too late, that they had all the while been working their own ruin and his advancement; and that their destruction was the foundation, upon which, he intended to build his future greatness.

The first step he took was the confining his father prisoner in a strong place, to which he had fled for safety, where he died six years after. *Aureng-zeb*, as soon as he had secured his father's person, thought it requisite and adviseable to do the same by his brothers. This he effected with

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wonderful address. The first that fell into his hands was *Dara* who was afterwards payson'd. And the rest were soon made incapable of giving him any further disturbance. These difficulties overcome, he was proclaim'd *great Mogul* in 1660 and his posterity still enjoy that title.

Their dominions extend eastward, beyond the *Ganges*, and are bounded by the ocean to the South, *Macran* and *Candahar* to the West, and *Tartary* to the North. *Aggra* and *Delly* are the chief cities of this empire, and both lay claim to the name and rank of capital.

It may be strongly presum'd, if not safely affirm'd, that the great *Mogul's* dominions are the richest in the world. For, not only several of the *European* nations, but most of the *Asiatic* carry gold and silver thither, for which they receive nothing in return, but the natural or artificial produce of that country. So that it may be compar'd to a gulph or whirl pool, into which all the money of the universe is thrown, and from whence none returns.

This Country is well peopled, especially near the great rivers. It is very fruitful, furnishing great plenty of rice, millet, lemons, oranges, dates, cocoas, silk and cotton. But, the great source of its wealth is the diamond mines in the kingdom of *Golgonda*; a treasure of inestimable value! The rivers *Ganges* and *Indus* run thro' all that country from North to South. The water of the *Ganges* is extremely light; but besides this natural quality, the *Indians* believe it indued with another, much more singular. They think it has an inherent sanctity, which, at certain times, may be acquir'd by bathing therein. Upon this account, you may sometimes see four or five thousand *Indians* devoutly washing themselves in this river, into which, at their departure, they throw gold and silver.

As riches are the *Mogul's* chief preheminance, so he is very careful to make a show of them, by all those outward marks of pomp and magnificence that attend unbounded wealth, and in this respect there is no other court in the universe that can vie with his in lustre. His chief residence, is at *Agra*, so large a city (say some travellers) that one of our jockeys, upon a new-market courser, cou'd hardly ride round it in a day. But this must be understood with the usual restrictions; no doubt, when they writ this, they look'd thro' the magnifying side of the glass: Now, to judge right, what have we to do, but to turn the telescope, and look thro' the other end?

There are in *Agra* fifteen large market places, in the principal whereof opposite to the imperial palace, are planted 60 huge canons, which indeed, on account of their monstrous size, (like our beef-eaters) are rather for oddness and curiosity's sake than use. The palace is very large, of a noble structure; and upon the walls, which enclose it, are noble porticos and pleasant terrass-walks.

The treasury is a fine building, which has a tower or steeple cover'd with plates of gold, and eight apartments fill'd with precious stones, pearls, gold and silver.

Next to the treasury is another palace, the roof whereof is also cover'd with plates of gold, This is the *Haram*, wherein are confin'd the ladies reserv'd for the *Moguls* amours, sometimes to the number of twelve hundred; much in the same manner, as a prince, here in *Europe*, who perhaps never crosses a saddle, may notwithstanding, have an equal number of horses in his studs.

These poor women, cloyster'd like nuns, and so narrowly watch'd, that they cannot entertain the least hopes of elopement, lead a most melancholy life, being allow'd only such dull sports and diversions, as are consistent with the humour, pride,

and

and jealousy of their barbarous keeper. These are only a more noble sort of bull and bear-beating, or the cruel encounters of lyons, elephants, and such like creatures, which are let loose in a large square appropriated to this purpose.

The first entrance into the *Mogul's* apartments is surrounded with silver rails. The two great courts of the palace are cover'd with pavilions of crimson velvet embroider'd with gold, and supported by pillars thirty five or forty foot high. There are many curious things related concerning the grand festival or *Mogul's* birth day, at which they weigh him, and if he weighs more than the year before, they make great rejoicings. Upon such occasions as these, he seats himself on his richest throne, the lords and ladies congratulate him, and make him presents. These are follow'd by the governors of provinces and towns, and it is said, that upon such a day, he receives in diamonds, rubies, pearls, emeralds, gold and silver stuffs, elephants, camels, and horses, to the value of above three millions sterling.

Great preparations are made against this day. Seven stately thrones are fitted up for the emperor; the first, adorn'd with diamonds; the second, with rubies; the third, with emeralds, and the rest with all manner of precious stones. The great throne erected in the first court is about six foot long and four foot wide. The supporters are enamel'd with gold. The rich stuff, wherewith the canopy is made, is quite hidden under a heap of brilliants, and a fringe of the largest pearls runs round it. Over the canopy is a peacock, whose starry tail is set with sapphirs and other stones of divers colours, the body of enamel'd gold is adorn'd with jewels; on its breast is a large ruby, whence hangs a pearl, in shape and bigness, like a pear, weighing above 50 carats. From the throne hangs a scymetar, a battle-ax, a shield, a
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bow

bow and a quiver fill'd with arrows, the whole enrich'd with precious stones. Round the twelve pillars, that support the canopy, are dispos'd, in wreaths and festoons, several rows of pearls. Overagainst the throne is a bored jewel, from whence hangs the famous diamond reported to be the biggest in the world and to weigh 279 carats $\frac{1}{10}$. On both sides the thrones (which was begun by *Timur-bec* or *Tamerlane* and finish'd by *Chah-Jehan*, and is reckon'd to be worth sixteen million) are fixt umbrellas of crimson velvet, embroider'd with gold and fringed with large round pearls, the sticks whereof are cover'd with diamonds. Whilst the king is on the throne, on both sides of it, but at some distance, are rang'd thirty horses richly caparison'd, the bridles emboss'd with diamonds, and jewels hanging from their necks, each horse held by an equerry sumptuously habited. The king's elephants, with embroider'd housings, and link'd in golden chains, are brought by pairs, before the throne, to pay their obeisance to the emperor. As soon as he has dismiss'd his elephants, he goes into the *Haram*. During five days, this ceremony continues. On the third, the king is weigh'd in large scales of massive gold. In the scale, opposite to that in which he sits, are thrown first jewels, and then fruits. After this, he is strew'd with gold and precious stones; the curtain falls, and the pageantry ends.





N^o 13. *Saturday, January 28, 1737-8.*

————— *Ardescunt ignibus undæ.*

OVID.

AMONG the several causes, made use of by the supreme being, either to bless or punish mankind, fire may, I presume, be reckon'd one of the chief. As the sun, whose genial heat cherishes and adorns nature, may be look'd upon as the best emblem of the universal benevolence of our great creator, so, many subterraneous and other fires may be rank'd among the instruments of his divine wrath. This is too well known to be insisted on: Every body has heard of *Etna*, *Vesuvius*, and other Volcanos, whose bowels conceal fires, that have so often rent the surface of the earth, and spread terrour and desolation all round. But few wou'd imagine, that the deep itself is a receptacle of flames, and that from the very bottom of the sea, have been felt and seen the dreadful effects of the burning element. This, as wonderful as it may appear, all those will find to be true, who will be at the trouble of reading the following abstract, faithfully translated from a letter written by an ocular witness.

' SANTORINO is one of the most southern
' islands of the *Archipelago*, about 30 leagues
' distant from *Candia*, the ancient *Crete* so cele-

‘ brated by the poets. Its circumference is about
‘ 45 miles. The soil, whose chief production is
‘ barley, is very dry. The island is pretty well
‘ peopled and there are in it, besides several
‘ smaller, five large villages.

‘ In the year 1707 the 23d of *May*, was seen
‘ from *Santorino*, about break of day, a new
‘ island rais’d above the surface of the water, at
‘ about a league’s distance from *Santorino*. The
‘ 18th of the same month, they twice heard (or
‘ rather felt) at *Santorino* something like an earth-
‘ quake. This was not much heeded at that
‘ time, but it has since given room to think that
‘ this was the very instant, in which the new
‘ island began to be loosen’d from the bottom of
‘ the sea. However, the cliffs or eminences of
‘ this new born island were first perceiv’d by ma-
‘ riners, who, not being able to distinguish ex-
‘ actly what it was, imagin’d it might be some
‘ wreck brought thither, by the sea, in the night-
‘ time. Possess’d by this thought, and in hopes
‘ of being the first who shou’d reap some benefit
‘ from it, they made the best of their way to-
‘ wards it, but, what was not their surprise,
‘ when, instead of a floating wreck, they found
‘ craggy rocks and solid earth? Amaz’d and
‘ frighten’d, they hastened back again, telling,
‘ every body they met, what they had seen.
‘ This strange piece of news affected the minds
‘ of those that heard it, in a different manner,
‘ according to their different way of thinking:
‘ some were struck with consternation, others
‘ moved by curiosity; The new island was the
‘ subject of every body’s discourse, and engross’d
‘ all their time and attention. At last, some of
‘ them, bolder than the rest, resolv’d to get as
‘ nigh as they could to it, the better to make
‘ their observations. They were a great while
‘ going backwards and forwards, and turning
‘ round

round it, carefully examining so uncommon a production. Then, apprehending there was no danger, they drew nearer and landed. Their curiosity led them from rock to rock, where they found, almost every where, a kind of white stone, that wou'd cut like bread, and was so like it, in shape, colour and consistency, that till it was tasted, it cou'd be taken for nothing but true wheaten bread. What pleas'd them most, as being a very scarce commodity at *Santorino*, was great quantities of fine oysters, that stuck to the rocks, whereof, after they had made a plentiful break-fast, they pick'd up as many as they cou'd. Whilst they were employing themselves this way, on a sudden, the rocks were seen to move, and they felt the earth tremble under their feet; they soon abandon'd their intended cargo, and in great confusion threw themselves into their boats. This motion was owing to the growth of the island, which visibly increas'd every moment, so as to gain in a very few days 20 foot in height, and about twice as many in length.

The motion, whereby the new island became daily higher and broader, being unequal, the island itself did not increase equally on all sides; and it often happen'd, that it sunk and diminish'd in one place, whilst it was rais'd and extended in another. One day especially, a rock, very remarkable both for its make and size, having sprung out of the sea, at about 40 paces distance from the island, I made it my business, during four days, particularly to observe it, after which, it sunk into the sea and was no more seen: but several others, that had alternately appear'd and disappear'd, remain'd, at last, fixt and unmov'd. In the mean while, the colour of the surrounding sea alter'd very much; it was at first, of a light green; then it
grew

grew ruddy, at last, it turn'd to a pale yellow.
The whole was accompany'd with a very great
stench.

The 16th of *July*, for the first time smoak
was seen to issue, not indeed from the island
itself, but from a ridge or chain of black
rocks, which suddenly rose up, about 60 paces
from it, from a place in the sea, where, till
then, had been found no bottom. Thus, for
some time there were two separate islands,
whereof one was call'd the white, and the other
the black island, by reason of their different
colour, but they were not long without reuniting,
altho' in such a manner, that these black
rocks came to be the center of the whole island.
The smoak issuing from them was very thick
and of a whitish colour, like that from a lime-
kiln. It was carry'd by the wind upon one of
the habitations situated at the extremity of the
gulph, where it every where penetrated without
doing much harm, the smell not being then
very offensive.

In the night, between the 19th and 20th of
July, were seen, in the midst of the smoak,
tongues of fire, which caus'd no small uneasiness
to the inhabitants of *Santorino*, especially those
of the castle of *Scaro*, the most expos'd of all,
both by its proximity and natural situation; be-
ing not above half a league distant from the
burning island, and built upon the brink of a
very narrow promontory, which hangs over a
precipice, bounded by the sea. Now, they had
only (as they themselves intimated) this dread-
ful alternative to expect, either to be blown up
into the air, by reason of the veins of combusti-
ble matter, which, as they thought, communi-
cated, under the sea, from the new island to
theirs, and wou'd soon take fire; or else, to be
hurl'd into the sea, with their houses, by some
sudden

‘ sudden earth-quake, which they hourly expect-
‘ ed. Upon this, they were resolving to depart
‘ from the castle, and to retire, with their effects,
‘ to some other island, or at least, to change their
‘ habitation, till such time as they had seen what
‘ this wou’d end in, and indeed several took to
‘ this last resolution, and it was with a good deal
‘ of pains and trouble that the rest were persuad-
‘ ed to stay. No less intimidated were the *Turks*,
‘ who were then at *Santorino*, in order to collect
‘ the tax, yearly paid by this island to the *Sultan*.
‘ Struck with amazement at the sight of fires
‘ rising from so deep a sea, (for near this new
‘ island it is 60 fathoms in depth) they exhorted
‘ every one to pray, and to send children about
‘ the streets, crying out *Kyrie eleison*, Lord! have
‘ mercy upon us. For (said they) these little chil-
‘ dren, having never yet offended God, are much
‘ fitter than those come to man’s estate to ap-
‘ pease his wrath. Nevertheless, the fire was not
‘ very considerable, issuing only out of a very
‘ small vent in the black island, and not being dis-
‘ cernible in the day-time.

‘ As for the white island, whence came neither
‘ fire nor smoak, it increas’d very fast, tho’ not
‘ so much by a great deal as the other. Large
‘ rocks were daily seen to spring up, which ad-
‘ ded sometimes to its length, sometimes to its
‘ breadth, and that so visibly, that this increase,
‘ from one moment to another, might be very
‘ easily perceiv’d. One day, these rocks touch’d
‘ the island, another, they were at some distance
‘ from it, insomuch, that in less than a month, we
‘ reckon’d up four black islands, which afterwards
‘ reunited so as to form but one.

‘ It was also observ’d, that the smoak was very
‘ much increas’d, and there being no wind at that
‘ time, it ascended so high, as to be seen from
‘ *Candia*, *Naxos*, and other distant islands. Du-

ring

' ring the night, this smoak look'd like a column
 ' of fire 15 or 20 foot high, and the sea was co-
 ' ver'd with a kind of ruddy turf in some places,
 ' and with yellow froth in others; and so infec-
 ' tious a smell was spread all over *Santorino*, that
 ' they were oblig'd to burn perfumes and kindle
 ' fires through all the streets. This stench lasted
 ' a day and a half, and then was blown off by a
 ' fresh south-west gale. But, after this evil came
 ' a worse, for the strength of the wind drove this
 ' hot vapour upon most of the vineyards in *Santo-*
 ' *rino*, whereby the grapes, which were just ripe,
 ' were all parch'd up in one night. This too was
 ' observ'd, that wherever reach'd this vapour, it
 ' sullied both plate and copper, and caus'd violent
 ' head-achs, attended with reachings. About the
 ' same time, the white island, press'd down by its
 ' own weight, sunk at once ten foot.

' The 31st of *July*, the sea was perceiv'd to cast
 ' smoak and to bubble near the black island, in
 ' two several places, in both which, the water
 ' form'd a perfect circle, and look'd like oyl, when
 ' set upon the fire. This lasted for above a month,
 ' during which was found upon the beach, abun-
 ' dance of dead fish.

' The following night, we heard a kind of deaf
 ' hollow noise, like the distant report of several
 ' cannons, and immediately after, sprung up, from
 ' the midst of the furnace, two long squibs, or laun-
 ' ces of fire, which rose to a very great heighth, and
 ' then were presently extinguish'd in the air.

' The 1st of *August*, the same hollow sound was
 ' at several times again heard; it was follow'd by
 ' a smoak, not white as heretofore, but of a blueish
 ' black, and which, notwithstanding a pretty fresh
 ' northern gale, sprung up, in the shape of a column
 ' to a prodigious heighth. Had it been night, I ve-
 ' rily believe this long column of smoak wou'd, like
 ' that abovemention'd, have appear'd all in fire.

' The

‘ The 7th of *August*, the noise was no longer hollow; it resembled rather that, which wou’d be occasion’d by several huge fragments of stone, falling all together into a deep well; it was probably caus’d by some large rocks, which at first clung to the island, but were afterwards loosen’d from it and plung’d down again by their own weight. What help’d to confirm me in this thought is, that whilst the noise lasted, I saw the extremity of the island in a perpetual motion, the rocks seemingly moving to and fro, disappearing and then appearing a new. However it be; to this noise, after it had lasted several days, succeeded a much stronger, and which was so much like thunder, that it cou’d hardly be distinguish’d from three or four real claps, which happen’d much about the same time.

‘ The 21st of *August*, the fire and smoke were considerably diminish’d, insomuch that at Night, it was hardly perceivable; but the 22d at sun-rising, it broke out again with more fury than ever. The vapour was red and very thick, and the heat caus’d thereby so intense, that all round the island, the sea smoke’d and bubbled up in a surprising manner. At night, I had the curiosity to observe, these several fires thro’ a telescope. Besides the large furnace burning upon the highest part of the island, I reckon’d up sixty smaller, that emitted a clear lively flame, and in all likelihood there might be as many more on the other side of the island which I cou’d not see.

‘ The 23d of *August*, in the morning, I found the island was much higher than the day before, and that its breadth was increas’d by a chain of rocks sprung out, in the night-time, nigh 50 foot above water. Besides, the sea was once more cover’d with the reddish scurf already mention’d, from which exhal’d an insufferable ill smell. The 5th of *September*, the fire burst out at the extremity of the black island, on that side towards

Q

‘ *Theresa*,

‘ *Therassia*, which some authors assert to have been
‘ formerly join’d to *Santorino*, from which it was
‘ divided by an earthquake, that let in the sea, and
‘ of one island made two. From this vent, the fire
‘ issued for several days, during which, there came
‘ but very little out of the large furnace.

‘ Had not a constant uneasiness, at so melancholy
‘ a situation, taken away all relish for diversion, we
‘ saw at this time what would certainly have
‘ afforded a great deal, *viz.* three large streams of
‘ fire, that rose three several times to a vast height,
‘ and form’d three most beautiful sky-rockets of a
‘ glowing lively red. The scene chang’d the follow-
‘ ing night. After several claps of the subterraneous
‘ thunder, at once appear’d a thousand as it were
‘ glittering sheaves of fire, scattering light on all
‘ sides, which afterwards coming to break and dis-
‘ perse, fell, in the shape of stars, like a shower,
‘ upon the island, which appear’d all in a blaze, and
‘ offer’d, to the spectator’s astonish’d sight, the most
‘ horrid, but, at the same time, the most beautiful
‘ illumination imaginable. To these natural fire-
‘ works, succeeded a different phenomenon, which,
‘ by the inhabitants of *Santorino*, whose minds
‘ were already depress’d by fear, was taken for a
‘ very bad omen. This was a kind of meteor,
‘ which for a long while remain’d unmov’d over the
‘ castle of *Scaro*, and then lost itself in the clouds.

‘ The ninth of *September*, the two islands, both
‘ the white and the black, perpetually increasing,
‘ came to unite and join into one. And after this
‘ junction, the western extremity of the island daily
‘ increas’d in length.

‘ Of all these different openings, of which I have
‘ already spoken, there were but four left, that
‘ emitted flames, which came out with great impe-
‘ tuosity, and the roaring within, was at some times,
‘ not unlike the sound of the biggest pipe of an
‘ organ, at others, you wou’d have thought you
‘ heard the howling of wild beasts. The

‘ The twelfth of *September*, the subterraneous
 ‘ noise augmented very much, and altho’ it had four
 ‘ openings to discharge itself, yet had it never been
 ‘ so dreadful nor so frequent as that day and the fol-
 ‘ lowing. The redoubled strokes, like the general
 ‘ volley of the great guns of a numerous army, were
 ‘ repeated ten or twelve times in four and twenty
 ‘ hours, and a moment after each clap, issued out
 ‘ from the large furnace red hot stones of an enor-
 ‘ mous bulk, which were cast at a vast distance into
 ‘ the sea.

‘ These claps were always follow’d by a thick
 ‘ smoak, which coming to disperse, scatter’d every
 ‘ where clouds of ashes, whereof some were carry’d
 ‘ as far as *Anesi*, an island 25 miles distant from
 ‘ *Santorino*. I had the curiosity to take up some
 ‘ of these ashes; upon black they appear’d whitish,
 ‘ and upon white almost black. As they were
 ‘ much of the same figure and grain with fine gun-
 ‘ powder, I threw some of them into the fire: But
 ‘ they only made a kind of crackling, without any
 ‘ flame.

‘ The eighteenth of *September*, an earthquake
 ‘ was felt at *Santorino*, that did no great damage,
 ‘ but the new island receiv’d thereby a considerable
 ‘ increase, as well as the fire and smoak, which,
 ‘ that day and the night following, burst out thro’
 ‘ several new crevasses. Hitherto, I had not seen so
 ‘ many fires together, nor heard such terrible claps,
 ‘ the violence whereof was so great, that you wou’d
 ‘ have thought every house in *Scaro* must have been
 ‘ shaken to the ground. From the midst of a dark
 ‘ and thick smoak, which look’d like a mountain,
 ‘ was heard the crashing of an infinite number of
 ‘ huge stones, which form’d in the air the same
 ‘ roaring noise as large cannon-balls, and afterwards
 ‘ rebounded back again upon the island and into the
 ‘ sea. A small neighbouring island was several
 ‘ times cover’d with these glowing hot stones, which

‘ made it look all in a blaze, infomuch that the first
‘ time we saw it, we imagin’d, from the proximity
‘ of the two islands, that the fire had pass’d, under
‘ the sea, from one to the other; but we were
‘ mistaken. All this proceeded from those stones
‘ being trim’d over with sulphur, and that being
‘ consum’d, they did cease to burn, in less than half
‘ an hour.

‘ The twenty-first of *September*, the small adjacent island being also in flames, after one of those terrible claps already mention’d, very great lightnings ensued, which in a moment flew from one end of the horizon to the other. At the same instant, the new island was so terribly shaken, that one half of the large furnace came tumbling down; and burning rocks of a prodigious size were driven at the distance of above two miles. We all thought that this last and violent effort had drain’d and exhausted the mine. We were confirm’d in this opinion by four days of tranquility and calmness, during which there was not the least appearance of fire or smoak.

‘ The twenty-fifth of *September*, the fire broke out again with more fury than ever. Among the almost continual claps, which were so violent, that two persons, standing close together, cou’d hardly hear one another speak, there was one so dreadful and terrible, that the churches were presently fill’d with crouds of people, expecting each moment would be their last; the doors and gates of houses flew open, and the huge rock, upon which stood the castle of *Scaro*, stagger’d to and fro.

‘ In order to avoid useless repetitions, I shall observe once for all that this continued in the same manner during the months of *October*, *November*, and *December* 1707; and *January* 1708, the large furnace, without one day’s intermission, emitting stones and flames, at least, once or twice but oftener, five or six times a day.

‘ The

‘ The tenth of *February*, 1708 about eight o’Clock in the morning, was felt, at *Santorino*, a pretty strong earthquake. The night before, there had been one of much less force, which made us judge, from the experience of what was pass’d, that more havock and destruction was preparing in the bowels of this volcano. We were not long in expectation of it. Fire, flames, smoak, redoubled claps like thunder, in short, nothing but horror and confusion, was seen or heard. Rocks of an amazing bulk, which till now had only appear’d just above the water, now tower’d to the skies, and the sea rag’d to such an excess, that altho’ we were pretty well accusom’d to it, there were none amongst us, but what it threw into the utmost consternation.

‘ The subterraneous bellowings were no longer heard by intervals only; night and day they never ceas’d. In less than a quarter of an hour, there were six or seven eruptions from the large furnace. The horror of the repeated claps, the quantity of huge stones which flew every way, the houses tottering to their very foundation, and the fire, which now appear’d in open day, surpass’d whatever we had seen before.

‘ The fifteenth of *April* was remarkable for the number and fury of these repeated strokes and noises: Insomuch that for a long time our eyes discovering nothing but flames, or fiery smoak, and fragments of rocks thrown up into the air, we imagin’d that all was at an end, and that the island itself had been blown up, and was totally destroy’d by these violent explosions; but we were far from being right in our guess. The cause of this violent uproar, was the fall of half the circumference of the large furnace, which however quickly grew as high as it was before, being repair’d by the vast quantities of ashes and large stones it had thrown up, and that were gather’d in great heaps round it.

‘ From

‘ From that day to the twenty-third of *May*, the anniversary of the birth of the new island, every thing continued much upon the same footing. What appear’d to me most worthy notice was, that the island still continued to grow in height, but had ceas’d increasing in breadth. The wide mouth or large furnace was rear’d very high, and the melted matter, which I take to have been sulphur or vitriol, coming to cake, whereby this huge fabric was knit and join’d together, form’d, over the opening, a kind of crust, with a broad slope or shelving.

‘ Afterwards, every thing by degrees grew more calm, the fire and smoak subsided, the subterraneous thunders grew less terrible. This in all probability was owing to the want of any more combustible matter which had serv’d as fuel to keep up the fire, as likewise to the several openings being widen’d.

‘ The fifteenth of *July*, I put in execution a design I had long since form’d, of taking a close view of the island. It was a very fine day, the sea was calm, and the fires were very moderate. I engaged in this party *Monsignor Francis Crispo*, the Latin bishop, and some other ecclesiastics, who had the same curiosity as myself. In order to this, we provided a galley-boat well calk’d, with double oakum beaten in between the planks. As we had agreed to land, if possible, in the island, we made directly towards it, on that side where the sea did not bubble, but where it smoak’d very much. We were hardly got into this smoak, when we all felt a close sweltry heat, which did almost suffocate us. We put our hands in the water, and found it scalding hot; and yet we were half a mile distant from our intended landing place.

‘ There not being the least probability we cou’d go on any farther on this side, we made towards that point of the island which was the farthest distant

‘ distant from the large furnace, on which side the
‘ growing island had all along increas’d in length.
‘ The fires, which still continued to burn, and the
‘ boyling up of the sea, oblig’d us to take a great
‘ compais, notwithstanding which, we felt the air
‘ about us excessively hot. After we had sail’d
‘ round it, we at last went a-shore in the island close
‘ adjoyning to it, whence we had time enough to
‘ examine (without danger) what was the true
‘ length of the new island, and particularly the side
‘ which we cou’d not discover from *Scaro*. The
‘ island was of an oblong figure or shape, its greatest
‘ heighth, at that time, might be about 200 foot, its
‘ greatest breadth, a little above a mile, and its cir-
‘ cumference five miles. After we had spent an
‘ hour, or more, in surveying every thing with care,
‘ we cou’d not forbear attempting once more to land,
‘ and we chose that place, which, as has been said,
‘ had been long call’d the white island. Several
‘ months were past without any alteration in that
‘ place, wherein, besides, had never been seen, either
‘ fire or smoak. So we set all hands to work and
‘ row’d that way. We founded; found 95 fathom;
‘ but for want of rope cou’d go no deeper. Whilst
‘ we were consulting, whether we should proceed or
‘ go back, the large furnace discharg’d itself with its
‘ usual fury, and to complete our misfortune, a fresh
‘ gale blew directly into our faces a large parcel of
‘ ashes and smoak; and happy were we! that
‘ nothing else came along with it. It wou’d have
‘ made any body laugh to see the pickle we were in,
‘ and how like devils this shower of ashes made us
‘ look. We made the best of our way home again,
‘ and we cou’d not do it more opportunely; for we
‘ were hardly a mile and a half at sea, when the
‘ eruption began a fresh, and threw into the very
‘ place, we had but just left, great numbers of
‘ burning stones. Besides, when we were got to
‘ *Santorino*, our sailors made us observe that the
‘ excessive

- excessive heat of the water had melted almost all
- the pitch from our boat, which began to take
- water on all sides.
- To conclude; this new island has continued
- burning ever since, but has made much less havock
- and noise than heretofore.



N^o 14. Saturday, February 4, 1737-8.

*Ab! nimium faciles qui tristia crimina cædis
Fluminea tolli posse putatis aquâ.*

OVID.

THE worship, due to the supreme being, having been uturp'd by fictitious deities, religion soon deviated from its original purity. From their fears or desires men form'd to themselves different notions of the god-head; according as they were led by an extravagant fear, or a wild desire, and it was properly these two passions, to which incense and sacrifices were offer'd. But the idea of providence cou'd not be intirely lost, nor effaced from the mind of man. There still remain'd a strong persuasion, that the gods were attentive to the actions of men, that they were offended at their crimes, and that both public and private calamities were the dreadful effects of their avenging wrath. Thus, every thing that seem'd to happen against the order of nature, as prodigies, monsters, celestial figs or meteors, was look'd upon, as so many tokens

tokens of the anger of the gods, and in order to avoid the fatal consequences of it, such religious ceremonies were invented, as was thought, cou'd appease and mitigate it. It is upon this foundation, or else from some knowledge of the moſaic law, that the heathens built their doctrine of *Expiations* or *Atonements*, an account whereof ſhall be the ſubject of this week's eſſay.

Strictly ſpeaking, crimes alone were the proper object of expiation. Nevertheless, ſacrifices of atonement were made uſe of upon ſundry occaſions, and there is hardly any part, either of public or private life, but what has been ſubject to it. Upon taking the command of an army, or celebrating public games, at all feſtivals, aſſemblies, and meetings, the firſt rites obſerv'd were always expiatory ſacrifices. If we deſcend into the particulars of private life, it will be found that the ancients were ſcrupuloſly nice in the performance of their purifications, not only upon account of the ſmalleft faults, but of whatever a ridiculous ſuperſtition made them look upon as ſiniſter omens. In this ſenſe of the word, by *Expiation* and other ſynonymous terms, ^a muſt be underſtood the performance of ſome religious act, in order to remove or avert ſome miſfortune threatned, as was thought, by an evil conſtellation, or by the meeting an ominous creature; but the moſt common ſignification of this word is an *atonement for crimes*.

Of all ſorts of *Expiations*, thoſe uſ'd in caſes of murder were the moſt ſolemn, and when the criminal was a man of diſtinction, even kings did not think it below their regal dignity to perform this ceremony themſelves. Accordingly, in *Apollodorus*, *Copreus*, who had kill'd *Iphirus*, is expiated by *Euryſtheus* king of *Mycenæ*. In *He-*

(a) *laſcare, purgare, februare.*

Herodotus, *Adrastus* goes to *Cræsus* king of *Lydia*, in order to be expiated. In the same manner, *Hercules*, *Theseus*, and several of the ancient heroes, voluntarily underwent the ceremonies of *Expiation*.

For an exact and particular account of it we are indebted to *Apollodorus* ^b. *Jason* the chief of the warriors who went to the conquest of the golden fleece, after he had, by the assistance of *Medea*, made himself master of this rich prize, convey'd away both his mistress and this precious booty. They were pursued by *Absyrtus* brother to the princess. The fear of falling into his hands made her take the cruel resolution of assassinating him. *Absyrtus*, sooth'd by her flattering promises, went to meet her in a small neighbouring island; where, not being upon his guard, he was kill'd by *Jason*, who had hid himself for that purpose. This horrid fact committed, *Jason* and *Medea* set sail for the island of *Æa*, in order to be expiated by *Circe*, who was *Medea's* aunt, and reign'd in that island. *Circe* not knowing her niece, receiv'd, as strangers, in a very obliging manner, both her and *Jason*; who approach'd her with a down-cast look, and, according to the custom of suppliants, without uttering one word, plac'd themselves within the hearth. There, *Jason* stuck into the ground the sword with which he had kill'd *Medea's* brother. By this action, their silence, their humble posture, and the place they had chosen, where they lay groveling in the ashes, *Circe* soon discover'd that they were fugitives and guilty of murder. Wherefore, she immediately prepar'd all things necessary for the *Expiation* of their crime. She first order'd a sucking pig to be brought, and, with the blood issuing from it, rubb'd the hands of *Jason* and

(b) Argonaut. l. 4.

Medea. Libations or wine offerings were afterwards pour'd out in honour of *Jupiter the atoner*. After which, having caus'd the remains of the sacrifice to be thrown away, she burnt, upon the altar, cakes made of flower, salt, and water; each of which actions was accompany'd by proper prayers, intended to appease the wrath of the cruel *Eumenides*, or goddesses of vengeance. As soon as the ceremony was ended, *Circe* desir'd her guests for whom a splendid entertainment was prepar'd, to sit down upon thrones richly adorn'd. It wou'd be quite needless, and foreign to our present purpose, to relate, that when once *Circe* was appris'd that *Medea* was her niece, she wou'd suffer her no longer to abide in her palace, but did not dare to proceed any farther against her, because *Medea* had implored her protection as a suppliant; a character esteem'd sacred among the ancients.

Such were the ceremonies of *Expiation for murder*. But it had not always been attended with so much trouble and so many inconveniences, for in the most ancient times, it was sufficient barely to wash one's self in a running water. This is alluded to by *Ovid*, in the two lines I have affix'd as a motto to this paper. The poet, after having spoken of several heroes who had been purify'd in this manner, condemns this practice as an abuse, and exclaims against the credulity of those, who fondly believ'd that river-water cou'd wash off the stains of the blood spilt by murderers.

The *Romans* made use of an *Expiation* peculiar to themselves, the particulars whereof may be found in *Dyonisius Halicarnassæus*, where he speaks of the atonement made by *Horatius* for the murder of his sister, committed just after his victory. This *Expiation* by washing was generally

observed after a battle : *Achilles*, if we may credit *Athenæus*,^c purify'd himself after the same manner at *Miletus*, when he had kill'd *Stombelus*, king of the *Leleges*. *Æneas*, immediately after the sacking of *Troy*, did not dare to touch with his hands his household gods, until he had purify'd and cleans'd himself with water.

But besides these particular *Expiations* for murder, there was a more general one for all sorts of faults committed. Such was the initiation into the mysteries of *Eleusis*, a place very near *Athens*. The candidates to be initiated, profess'd a total regeneration. They were, for the future, to lead a quiet, innocent, and holy life ; and they were sooth'd and flatter'd with the pleasing hope, that the first places in the *Elysian* fields, which were feign'd to be the mansions of the blessed, would certainly be theirs. But they believ'd that, on the contrary, those, who were so unhappy as to be depriv'd of the knowledge of these mysteries, were doom'd to eternal darkness. Therefore, it was but just and reasonable to be at some expence and trouble in order to obtain those blessings, they were in hopes of enjoying by means of this initiation. Besides, nothing seem'd more natural than to begin a new life by the atonement of past offences. So, it is no wonder, if this was the first step to be taken in this ceremony. First, a priest, who whilst he acquitted himself of this function had the title of *Ydranos*, sacrificed, to *Jupiter*, a sow big with young. Her skin was afterwards extended upon the ground for the person that was to be purify'd to sit upon. This ceremony was preceded by a strict fast, and follow'd by prayers, and by ablutions of salt-water, after which, the candidate was crown'd with a chaplet of flowers. When he had

undergone these several trials, he might then aspire to the title of *Myſta*, a name given to thoſe who were initiated in theſe myſteries.

The atonements and other ceremonies, made uſe of before leave was given to conſult the oracle of *Trophonius*, were ſtill more tedious and fatiguing than thoſe abovemention'd; for men are apt to take more pains to ſatisfy their curioſity than their devotion. *Trophonius* and *Agamedes*^d were brothers, ſons of *Erginus*, king of the *Orehoemenians*. They had ſo great a genius for architecture, that moſt princes not only made them very welcome and receiv'd 'em with pleaſure but ſtrove who ſhou'd have them at his court. They built temples and palaces for ſeveral of them. In that, which they erected for *Hyrieus*, they contriv'd to adjust a ſtone, in ſuch a manner, that tho' it appear'd part of the building and to ſtick as cloſe as any of the reſt, yet, it cou'd be taken out with eaſe. By this means, they went in by night, and robb'd the treaſure of *Hyrieus*, whoſe riches were very conſiderable. He, ſeeing that notwithstanding his locks and ſeals were intire and unbroken, yet, his gold diminifh'd daily, bethought himſelf of laying ſnares about his coſſers and cheſts, wherein *Agamedes* having the miſfortune to be caught, *Trophonius* cut off his head, leſt had he been taken alive, the tortures of the rack ſhou'd have forced him to reveal that his brother was his accomplice. *Trophonius* immediately diſappearing, a rumour was ſoon ſpread abroad, that on the ſpot, he had been ſwallow'd up by the earth; and the ſuperſtitious folly of thoſe times went ſo far that this infamous robber was rank'd among heroes and demi-gods, and his pretended oracle was conſulted with abundance of formalities equally troubleſome and myſterious.

Fiſt of all, ſome days were to be ſpent in a chapel, conſecrated to the good genius, where ſeveral
ſorts

sorts of purifications were made use of. Fasting was prescrib'd, as well as abstinence from wine, and from washing in warm water, instead whereof, was recommended frequent bathing in the river *Hercyna*. Many were the sacrifices offer'd to *Trophonius* and his sons, to *Apollo*, to *Jupiter*, and to *Juno*. In the mean while, the *Haruspices* carefully inspected the entrails of the victims, in order to discover whether the god was appeas'd. After this, the same night that the oracle was to be consulted, a ram was sacrificed to *Agamedes*, and a good omen was to be taken from this victim, before that one cou'd proceed any farther. Then, he, who came to consult the oracle, was conducted, by the priests, to the neighbouring river, where, after his body had been rubb'd with oyl and wash'd by a couple of youths, he was, by them, led to the two springs of this river, which were but a small distance asunder. There they made him drink, from the first, a draught of *Lethe* or oblivion, that he might forget whatever he had seen or heard before, and from the second, a draught of *Mnemosyne* or memory, that he might remember what he came to learn, and was just going to be inform'd of. After all this, they put him on a linnen garment, his head was bound with a wreath or fillet, and in this equipage he was introduced into *Trophonius* his cave.

The next sort of *Expiations* were those made use of to purify whole towns or cities. There was generally a fixt day appointed for this solemnity: At *Rome*, it was kept on the 5th of *February*: The sacrifice offer'd upon this occasion was, according to *Servius*, call'd *Amberbale*, or *Amburbium*, and the victims *Amburbiales*. Besides this festival, there was another celebrated every five years by the *Censors*, as I have already observ'd in a former essay. This was call'd *lustratio*, and from hence, the word *lustrum* comes to signify a space of five years. These solemn atonements took place also upon some
very

very extraordinary occasions, as when the *Tarquins* were expell'd and the consular authority succeeded that of the kings^e. But sometimes, it was not the whole city that was atoned for, but some particular place in it, which was thought to be defil'd. The *Expiations* of cross-ways were call'd *compitalia*.

The last sort of *Expiation* was that of armies^f who were purify'd both before and after the fight. *Homer* gives an account, in the first book of the *Iliad*, of the solemn manner in which *Agamemnon* expiated his army, after that *Apollo* had afflicted it with the plague; and as this is the best and most exact description of this kind now extant, I am apt to think, the *English* reader will not be displeas'd, if he finds it here, according to Mr. *Pope's* beautiful translation of it.

*The host to expiate, next the king prepares,
With pure lustrations, and with solemn prayers,
Wash'd by the briny wave, the pious train
Are cleans'd, and cast th'ablutions in the main.
Along the shore whole heratombs were laid,
And bulls and goats to 'Phœbus' altars paid.
The sable fumes in curling spires arise,
And waft their grateful odours to the skies.*

The number of these public *Expiations* is by far exceeded by those, in use, in private families, which it wou'd be endless to enumerate. Nuptials, funerals, in a word, every circumstance in life of any moment, was preceded by some act of atonement. Whatever was reputed of ill omen, as the meeting of a weasel, a raven, or a hare, an unlook'd for shower, an unexpected storm, a bad dream, were all to be expiated by proper atonements. But, indeed, in such cases as these, sacrifices were not

(e) *Dyon. Halic.* (f) *Armilustrium.*

always absolutely necessary; to wash, or shift cloaths, was often times sufficient. Salt water was always preferr'd to that of rivers, and running streams to standing water. But besides water; salt, barley, laurel, and even fire was made use of, thro' which were to pass those who underwent the *Expiation*.



N^o 15. *Saturday, February 11, 1737-8.*

Templa manent kodie vastis innixa columnis.

ALL civilis'd nations, that ever I read or heard of, have built *Temples* in honour of what they look'd upon as the supreme agent, or at least, of those real and imaginary beings, that were the objects of their worship. I must only except the *Persians*; for we learn from *Tally*, that they thought it disrespectful, for weak mortal men, to pretend to receive the gods within their walls, to confine the immortals to so narrow a space, and prescribe bounds to immensity itself. Tho' it wou'd not be very difficult to confute this opinion, I shall, at present, content myself with taking notice, that the *Jews*, *God's chosen people*, built a temple by his special command; and that the same practice was observ'd by the most polite and knowing of all the ancients, the *Greeks* and *Romans*.

These

These last were remarkably religious in this particular. Upon any good success, they seldom fail'd of erecting temples, the name whereof owes its original to the *Augural Temple*, or enclos'd space, where the *Augurs* observ'd the *flight of Birds*. By the same name were call'd all places whatever, mark'd or traced out by the *Augurs*, altho' not intended for religious worship. The first men, living in forests, had no other temples than consecrated woods, generally planted upon a rising ground; and as they met there, only in the night-time, they were illuminated by a great quantity of lights, whence they had the name of *Luci*, from *lux*, which signifies *light*.

No sooner did men form themselves into societies and build cities; but they likewise erected temples. Some are of opinion that the first, which were seen in *Italy*, were founded by *Janus*, in whose name the *Romans* began their sacrifices: Others attribute the invention of them to *Faunus*, whence the word *Fanum* a synonymous term for temple. But these must, at first, have been only consecrated woods; the *Romans*, according to *Varro*, having been 170 years without temples properly so call'd.

As for the temple of *Janus*, built by *Romulus*, the first king of *Rome*, it must be consider'd, rather as a monument, than as a place of worship, and in all likelihood, it was rais'd with a design to perpetuate the memory of the friendship, union, and strict alliance between the *Romans* and *Sabines*, whereof the statue of this god with two faces ^a was the emblem, as well as of peace and war.

The formalities, requisite for consecrating a temple to the gods, were, the authority and sanction of the laws, the observation of auspices, and the ceremony of the consecration itself.

(a) *Janus bifrons.*

A general or magistrate, who had vow'd to build a temple, cou'd not do it, without the consent of the republic. After it had been resolv'd in the senate, a law or ordinance of the commonalty ^b was still requisite to make it effectual. Under the emperors, upon these occasions, their bare will was instead of law.

The law once pass'd, the *Augurs* were consulted. They were call'd together by an order of the commissioners ^c appointed for the conduct of the work. The *Augurs* began by the choice of the ground, in doing of which, special regard was had to the nature and offices of the god, to whom the temple was to be consecrated. *Vitruvius* observes, that the temples of *Jupiter*, *Juno*, and *Minerva* were to be seated upon hills, because they were esteem'd, the tutelar deities of *Rome*, that had a particular concern for the Interests of the empire. *Mercury*, *Isis*, and *Serapis*, as gods of trade, had their temples near the markets. Without the city, were those of *Mars*, *Bellona*, *Vulcan*, and *Venus*; because they were look'd upon as troublesome and dangerous deities. Tho' indeed it must be own'd that these rules were not always exactly follow'd.

After this, the *Augurs* inspected the flights of birds, which was call'd *taking the auspices*, and if these were favourable, they drew the outlines of the temple ^d. The first stone was laid with much form and abundance of ceremony. The *Vestals*, accompanied by children of both sexes whose fathers and mothers were still living, sprinkled the place with three different sorts of water; it was afterwards purified by the sacrifice of a white bull and cow. The chief pontiff, or high-priest, ^e invoc'd the god, to whom the temple was intended to be rais'd.

(b) *Placitum*. (c) *Decretum*. (d) *Ædificium*, seu. *struere templum*. (e) *Pontifex maximus*.

Then was laid the first stone, upon which were engraven the names of the then reigning magistrate and pontiff, and at the same time were thrown into the foundation gold and silver medals, and pieces of metal in the oar. All this was usher'd in and follow'd by the repeated acclamations of the whole people.

The temple being built, the dedication ensued, which at first was the office of the chief magistrate. But afterwards, several feuds and contentions being occasion'd thereby, recourse was had to the sovereign power of the commonalty: at last, it was left to the disposal of the senate, but not without the intervention of the tribunes of the people. This lasted as long as the common-wealth; but the emperors, assuming to themselves the power of the tribunes, became sole masters and judges of this as well as of many other things.

The day of the dedication of the temple was look'd upon as holy, and celebrated as a solemn festival, by extraordinary rejoycings: the altars were cover'd with victims; the temple was adorn'd with wreaths and garlands; hymns were sung to the sound of flutes. The magistrate, who perform'd the ceremony, laid his hand upon the peers or door-posts, calling, with a loud voice, upon the pontiff, or high-priest, to assist him in this sacred function, by pronouncing, before him, the form prescrib'd for these occasions, which he repeated after the priest, word for word; and in this, they were so scrupulous, that they imagin'd the forgetting, or pronouncing wrong, a single word or syllable, was sufficient to marr the whole mystery. It was for this reason, that the chief pontiff *Metellus*, being troubled with an impediment in his speech, was forced to practise several months, in order to pronounce rightly the word *opifere*. All that assisted at this ceremony were oblig'd to be cloath'd in white, and every thing was excluded from it, that had the least

shew of grief or mourning. On which occasion it is reported of *Horatius Pulvillus*, that whilst he was dedicating the capitol, some of his enemies came suddenly upon him, with a false account of his son's death; not doubting but that he wou'd give some indications of grief and sorrow that wou'd have violated the sanctity of the rite, which must have been perform'd over again by some other person. But this great man very notably disappointed his enemies. and receiv'd the message without any visible emotion. Then, went on very orderly in his function till he had gone thro' with it.

A temple cou'd not be consecrated without a statue of the god, which was placed in the midst of it. Beneath it was an altar, upon which the first offering was made, consisting of pulse boild in water, and a kind of thick milk, both which were afterwards distributed among the workmen.

The names of the magistrates were written or engraven upon the frontispiece of the temples they had dedicated. Those, who rebuilt them, when they put up new inscriptions never eras'd those of the first founders.

As the gods were suppos'd to be of different ages, inclinations, and employments, the builder had an eye to this, when he laid out his plan, and vary'd his ornaments accordingly. We have no less than *Vitruvius's* authority for it, who tells us, that the temple of *Jupiter* the thunderer, of *Cælus* or heaven, of the sun, the moon, and the god *Fidius*, were to be uncover'd at the top, and that the same suitableness and agreement was observ'd in the several orders of architecture. The temples of *Minerva*, *Mars*, and *Hercules*, were of the *Doric* order, the majesty whereof was most becoming the valour and manly virtues of these deities. For those of *Venus*, *Flora*, *Proserpine*, and the water-nymphs, the *Corinthian* order was made use of; the exquisite beauty of the foliages, volutes, and flowers, where-
with

with it is adorn'd, best sympathizing, if I may use the expression, with the soft female charms of those ever-blooming goddesses. The *Ionic* order, in a just medium between the gravity of the *Doric* and the gayety of the *Corinthian*, was employ'd in those of *Juno*, *Diana*, and *Bacchus*. The *Tuscan* was appropriated to the grotto's of the rural deities. One presently knew, at sight of the architecture of a temple, who was the god worshipp'd in it.

The manner, in which most of them were built, had something in it very solemn and awful. At the first entrance, you met with a spacious court or area, which was surrounded with cover'd galleries, or portico's, supported by columns; the perspective was bounded by the temple itself. It was mostly of a square form, and generally divided into four principal parts, *viz.* a porch or vestibule in front; another opposite to it; two wings form'd on each side by several ranks of columns; and the body of the temple, or if you will, the sanctuary^f. The porch and wings were not in all temples alike. They had no windows in the body of the temple; but the light came in at the doors and from the top.

Altho' that part of the temple, which we have call'd the sanctuary, was more particularly design'd for religious worship, yet notwithstanding, civil affairs were frequently transacted in it, after the sacrifices were ended, and a veil was drawn over the statues and altars. It cou'd not be dedicated to two several deities, unless they were inseparable, such as *Castor* and *Pollux*, but different gods might have each his sanctuary or chapel under the same roof, and in this case the Temple was call'd *delubrum*.

Here was seen the statue of the god, sometimes in a niche, sometimes in a tabernacle, call'd *edicula*. It was purposely turn'd towards the west, that those

(f) *Cella* *vulg.*

that came to worship it, might have their face to the east. Besides several small ones, there were commonly three great altars in the Temple. The most conspicuous was just beneath the statue. It was raised very high and for this reason call'd *altare* ^g. Upon this they burnt incense and perfumes, and made libations or wine offerings. The second, upon which the victims were sacrificed, was before the Temple-gate; these two were fixt; the third cou'd be mov'd at pleasure, upon which were placed the several offerings and sacred vessels. The altars of the celestial deities or heavenly gods were higher than the rest, those of the terrestrial, or gods of the earth, something lower, and those of the infernal or gods of hell sunk into the ground.

There was always a great number of tables and all sorts of utensils and sacred vessels in the Temples. The offerings and presents hung from the vault nam'd *tholus*. To the pillars were fastened the spoils of the enemy, the votive pictures, and the arms of those gladiators, who were past service. The sacred beds, called *pulvinaria*, upon which, on solemn days, reposed the images of the gods made of ivory, magnificently dressed, and bigger than the life, with several rich presents and precious offerings; in short, whatever served for the use of the Temple, was kept in a kind of treasury called *Donarium*. It was here also that very often, especially in time of trouble, private men deposited their money and most valuable effects.

Besides, these Temples were adorn'd with the statues of great men and illustrious personages, with their pictures, in *basso-relievo*, curiously emboss'd upon a kind of escutcheon or shield ^h, and with paintings, representing their atchievements either in war or in peace, their noblest actions and most cele-

(g) *from altus high.* (h) *Clypei votivi.*

brated victories. Gold, bronze, marble, and porphyry were so profusely lavish'd in these sumptuous buildings, that they might well be look'd upon, as the strongest proofs of the grandeur and magnificence of ancient *Rome*.



N^o 16. *Saturday, February 18, 1737-8*

————— *Deserta perago.*

VIRGIL.

AS the prospect of groves, fields and meadows, interspers'd with rising hillocks, murmuring brooks, and purling streams, not only pleases the eye of the beholder, but cheers the heart, and diffuses o'er the mind that sedate undisturbed gladness, which *Milton* calls *vernal delight*, so, on the other side, a wide extended plain without either bush or shrub, a sandy desert, or a barren wilderness lay claim to our admiration and wonder, and cause, if I may use the expression, a pleasing kind of astonishment. For this reason, I have thought that a short account of some of these vast uncultivated tracts of land wou'd not be disagreeable to the generality of my readers. And whereas several of these deserts have nothing worth notice but their great extent, it wou'd be a tedious and endless piece of work to pretend to give a regular history of them all: it will be sufficient for our present purpose to mention those which are most remarkable.

Such

Such are, for example, several arid and sandy plains of *Africa* beyond mount *Atlas*, which are call'd the deserts of *Barbary* and many others, which are dispers'd over that dismal dreary part of the world. At sight of them, one wou'd be apt to imagine, that the heavens have pour'd upon them a rain of fire, or that they have been overwhelm'd with a deluge of flames. Here, every thing appears dry and parch'd up ; Here, never fall cooling dews nor refreshing rains ; Here, no beaten path, no human footsteps or winding causeway directs the wandring and bewilder'd traveller ; but, in the same manner as upon the open sea, he can have no other guide, than the stars or compass : and he is expos'd in these deserts to storms and tempests no less perilous than those of that boisterous element. For, when the winds blow, they raise the sand, and carry it up to a great height into the air ; from whence descending in the most dreadful of showers, it overwhelms and buries alive all that are so unhappy as to be expos'd to it.

But,

*Quid non mortalia pectora cogis
Auri sacra fames?*

What tyranny does not the lust of gain exercise over human kind? As horrid, as dangerous as is this wilderness, it cannot deter the greedy merchants, who, thro' these wild pathless regions, convey salt and several other necessities to places beyond them, which afford some shelter, have a few inhabitants, and where the soil is not quite so barren. These men are forced to furnish themselves with provision for the whole journey, even with water itself, without which they wou'd be in great danger of perishing with thirst, there being no springs in the whole country, except a few poor scanty wells of brackish water, and those several journeys asunder. It is indeed pretty well known, at what time of the year
these

these dangerous winds begin to blow, for they generally return at a certain season, but not so constantly, as to be a security against mistakes, as has been fatally experienc'd by several *caravans* (for by this name are call'd companies of these merchants travelling together) that have been as it were interr'd under these mountains of sand, which are transported by the wind from one place to another. The sight of these arid deserts made the *Romans* and *Carthaginians* believe, that whatever regions lay beyond mount *Atlas* were not worth the conquering; that the ground was quite burnt up, so as not to be able to bear or produce the least vegetable. But the several discoveries made since their time, have convinced the world of the contrary. For in the inside, as it were, of *Africa*, in those parts chiefly more remote from the sea, there are places, where the soil is very fruitful, where the grass is cover'd with manna, and every plant and shrub with honey, not to mention several large rivers which refresh the air, help the productions of nature, contribute very much to the growth and goodness of all the fruits of the earth, and are a great addition to the beauty and pleasantness of the country. As for the uncultivated plains of that part of *Africa*, call'd *Bildulgerid*, they are not so barren as those we have been describing, for they bear great plenty of palm trees and dates.

There are some; who, in order to account for these vast quantities of sand, suppose that in these countries were formerly to be seen large tracts of mountains, which, little by little, during a succession of several centuries, are crumbled away, so as to be reduced, at last, to the smallest powder or dust; much in the same manner as we see some sort of stone turn to sand upon being broken with a hammer.

Others are of opinion that the ocean formerly divided *Africa* into two parts, and that the free
T passage

passage of the water coming at last to be stopp'd up by slime or otherwise, the sandy bottom remain'd. For this, they have the authority of *Plato*, and according to it, *Samson* a french author of no small repute, in his ancient geography, has a map, wherein the sea divides *Africa* and makes two large islands of it. To support this opinion, 'tis well known that the red sea has long since been observ'd gradually to decrease; insomuch that at present there is hardly a navigable channel left in the middle: from whence it may be reasonably expected that in length of time it will be intirely dried up, and leave its empty bed a vast plain of sand, like those of which we have been speaking; whereby *Africa* will be joyn'd to *Arabia Felix*, and of consequence, to *Asia*. But God alone knows whether either of these two opinions is founded upon truth. This indeed we are sure of, as well from ancient history as observations of our own times, that the surface of the earth has undergone great alterations; the land in some parts gaining upon the sea, in others the sea incroaching upon the land. It is no less true that mountains, as has already been said, crumble away and are reduced to dust. This indeed affords ground enough to conjecture, but not positively to assert, that to one or other of the above-mention'd causes is to be ascrib'd the production of these strange sandy desarts.

One of the most remarkable, both for its extent and singularity, is that between *Tibet* and *China*. call'd the desert of *Xamo*, which reaches for some hundreds of leagues, from the mountains of *Indo-zeran* and *Tibet*, to the inmost parts of *Tartary*, in the shape of a wreath or fillet, several leagues broad. This prodigious slip of sand is in a climate much more temperate than that of *Africa*, being frequently water'd with rains. How to account for it I know not, for it is not easy to conceive that the sea cou'd ever have penetrated so far as this desert
does

does in our maps, that is, as a very long and narrow channel. Besides, there are not to be seen in that place the least marks or footsteps of mountains.

But to continue. In the coldest place, not only in *Lapland*, but also throughout *Sweedon*, a country very plentifully water'd by a great number of fine lakes, are to be found desarts no less dangerous than those of *Africa*. For the winds, which constantly blow in them, carry the sand up into the air which when it falls, covers the holes or pits that are full of snow, hides all manner of path or tracks, whereby travellers lose their way, and often meet with very bad accidents, but more particularly sportsmen, to whom, as they run over hill and dale, thro' woods and forests, it has happen'd, that imagining they trod upon firm ground, of a sudden, it has sunk under them, so that they have been smother'd in a quick sand, or stifled to death under a heap of snow.

Near the *Caspian* sea, all along the coast, from *Astracan* to *Tarkj*, are desarts of a very great length, notwithstanding the neighbourhood of the sea, and that a great number of rivers very full of fish, run thro' these wild places. But this will not surprise those, who are inform'd that the water of these rivers is brackish, unhealthy and very disagreeable to drink, and that the land hereabouts, being too much impregnated with salt, is not very fruitful. Insomuch that when the *Czar* of *Muscovy* undertook in 1723 to wage war against several nations situate upon the boundaries of these desarts, his land forces were follow'd by a coasting fleet loaded with all manner of provisions and ammunition which kept close to the shore.

I remember to have read in a relation of *Chili*, written in *Spanish*, that the vast tract of land, between the mountains of *Peru* and *Brazil*, (which cannot be survey'd even very superficially in less than three months) altho' it abounds in all manner of

plants and plenty of game, yet is but very thinly peopled, and may deservedly be look'd upon as a kind of wilderness; but this must not be attributed to the badness of the climate, but to the want of policy and industry in the inhabitants, who, for the most part, wander from place to place, in search of pasture for their cattle, fish and wild-fowl for themselves and their families. And indeed, but a few centuries since, the whole continent of *America* might have been look'd upon as a huge uncultivated forest, inhabited by savages scarce to be rank'd among rational creatures. But the *Europeans*, who have settled colonies there, have already, in a great measure better'd the place, cut down the woods, till'd and manur'd the land, built towns and cities, establish'd manufactures, settled correspondencies abroad, and, in short, made a general alteration and chang'd the whole face of things. Happy wou'd it be for the inhabitants of those distant regions, if the knowledge of morality and true religion had been propagated among them, with as much industry as the arts of traffic and lucre; if their minds had been improv'd as well as their commerce, and they had been instructed in the practice of virtue, as well as in the mysteries of trade and husbandry! But it is to be hoped, that in the new settlement at *Georgia*, supported by his present majesty, encourag'd by a british legislature, and conducted by a gentleman of known wisdom and integrity, former advantages will be improv'd, former errors rectify'd, and former mistakes avoided. But to digress a little further, we may observe that were it not for the care and industry of men, in checking the luxuriance of nature, the earth wou'd soon be over-run with weeds, brambles and briars, and overgrown with woods, in short it wou'd be nothing but a large forest fit only to harbour and shelter wild beasts and other savage creatures. Besides, the very air is improv'd by
the

the cultivating of the earth, witness the lake of *Averno* in *Italy*, from which whilst it was surrounded with thick gloomy woods, arose poisonous vapours. This we learn from the *Latin* poet *Silius Italicus*, * who takes notice that these vapours, which were very noxious and hurtful in *Hannibal's* time, were quite dispers'd at the time when he wrote his poem; because *Agrippa*, who liv'd between *Hannibal* and *Silius*, had cut down the woods that enclos'd the lake, and hinder'd these pernicious steams from being dissipated; which were immediately scatter'd as soon as the winds and fresh air were let in among them.

An instance much to the same purpose is that of several parts of *North-America*, where, through vast tracts of ground, nothing but woods were to be seen, which render'd those parts excessively cold; but since they have been cultivated, the air (and this, I presume, must be owing to exhalations from the earth) is grown mild and temperate as that of *England*, or rather as that of the northern part of *France*.

There are forests of an immense extent in those parts of *Muscovy*, known by the name of *Siberia* and *Samoieda*. Of the *Hereinian* forest which in ancient times cover'd almost all *Germany*, and has been very famous in history; there are at present but few remains left, in what is call'd the *Ardenne*s, and the *Black Forest*. The forests of the *Czeremisses* (which signifies *inhabitants of the woods*) are of a vast extent and prodigious length.

* *Stagna inter celebrem nunc mita monstrat Avernum,
Tum tristi nemore atque umbris nigrantibus horrens,
Et formidatus volucris, lethale vomebat
Suffuso virus cælo, Stygiâque per urbes
Religione sacer, sævum retinebat honorem.*

There are many others in *Africa* and *Asia*, but as they have nothing very remarkable and follow the general order of nature in this kind of productions, I shall not undertake to enumerate them here; that being a thing which, in my mind, wou'd be rather tiresome than pleasing. I shall conclude this essay, with a translation, by a very good hand, of a passage in *Silius Italicus*, in the beginning whereof are the verses alluding to the matter of fact above mention'd, and quoted at the bottom of the page from that poet. The whole passage, which gives a general map of the great bay of *Naples*, may be look'd upon, by some, as foreign to the purpose, but there is something in the following description so picturesque and beautiful, that I do not doubt, I shall gratify thereby, rather than disoblige, the best part of my readers.

' *Averno* next he shew'd his wond'ring guest,
 ' *Averno* now with milder virtues blest'd;
 ' Black with surrounding forests then it stood,
 ' That hung above, and darken'd all the flood:
 ' Clouds of unwholesome vapours, rais'd on high
 ' The flutt'ring bird entangled in the sky,
 ' Whilst all around the gloomy prospect spread
 ' An awful horror, and religious dread.
 ' Hence to the borders of the marsh they go,
 ' That mingles with the baleful streams below,
 ' And sometimes with a mighty yawn, 'tis said,
 ' Opens a dismal passage to the dead.
 ' The dark *Cimmerian grotto* then he paints
 ' Describing all its old inhabitants,
 ' That in the deep eternal city dwell'd
 ' And lay in everlasting night conceal'd.
 ' Advancing still, the spacious fields he shew'd,
 ' That with the smother'd heat of brimstone
 glow'd.]

‘ Through



N^o 17. Saturday, February 25, 1737-8.

——— *Foribus domus alta superbis
Manè salutantum totis vomit ædibus undam.*

VIRGIL.

MEN, being all deriv'd from the same original stock, were at first intirely equal, or at least, knew no difference, but what nature taught them, such as that of father, son, and brother. But afterwards, their reciprocal wants gave birth to civil society, and this, to title, place, and distinction. In absolute governments, primitive equality was soon totally destroy'd; but in those of a mixt kind, notwithstanding the necessary superiority of those, to whose care the executive power was committed, yet, the distribution of this power, being generally in the hands of the bulk of the people, occasion'd an appearance of equality, and thereby an intercourse of mutual civilities and complaisance. This is very visible at elections. The tradesman, who, some months before, bow'd down to the ground and made the most submissive application, that he might work for *his honour*, or get his bill paid, is now, in his turn, cajol'd and address'd: the haughty squire appears in the form of an humble petitioner, and mylord himself be-
comes

comes suitor for a vote, and allows interest to his creditors.

But this ebb and flow of courtship was still more remarkable in ancient *Rome*, where, on one side, places of the highest trust and greatest importance were at the disposal of the commonalty, and on the other, each commoner, taken singly, generally depended, for his quiet, security, and advancement, upon one of the nobles, whom he had chosen for his *patron*, and whose *client* he declar'd himself to be.

These nobles, who, at the first settling of the common-wealth, were distinguish'd from the rest of the people, chiefly by being their protectors, and held their places under no other ties, than those of gratitude and acknowledgement, became, at last, by their artifices and dexterity, and by the idleness and corruption of those they had to deal with, the imperious masters of mutinous tho' voluntary slaves. Bribes were freely receiv'd and given; *levees* were frequented and came into fashion; and such abject tokens of homage, as might well be look'd upon as the forerunners of servitude and absolute power, began to be in use among the *Romans*.

Every morning, their first indispensable duty was to wait upon the ruling men, to whom, wishing a good morrow, they kiss'd their hands in the same manner, as before the statues of their gods. They always appear'd at these morning salutations in full dress, that is, in a *toga pura*, or gown of the finest white wool. They staid till their patron was pleas'd to shew himself in the *vestibulum*, or hall; and after they had been admitted into his presence, in case he went out, they attended him abroad, crowding about him on all sides, as he walk'd the streets, or in latter times, following his litter on foot. The same distance was observ'd at entertainments. A client, who had the honour

of receiving his patron at his table, always left to him the choice of the other guests, and invited them in his patron's name; in short, nothing was omitted, that might testify, how much he was indebted to him for so great a favour. These, I must own, are such distinctions, as cou'd only please vain empty men; but those observ'd in their letters, and indeed, their true taste in this kind of writing, cannot, I think, be too much applauded, and deserve to be recommended, as patterns and examples worthy of imitation. The epistles of *Seneca* and *Pliny* the younger, but more especially, *Tully's*, are standing proofs of what I assert, and may be look'd upon as the best models of that true politeness and good breeding so peculiar to the *Romans*. In reading the letters of these great men, one cannot but observe with pleasure, with how much delicacy they address those, whose favour and esteem they coveted; the dexterity, with which they recommend their friends; the happy turns and well chosen expressions they make use of to ask their advice or assistance, to congratulate them upon the good success of their undertakings; or condole with them in their misfortunes. But, what I wou'd more particularly speak of, as conducing most to my present purpose, is that noble plainness and simplicity, so remarkable among them, even after the loss of their liberty, in the beginning and ending of their letters; an agreeable wish and a kind farewell were the only compliments they us'd upon these occasions: Which when compar'd with our gothic civilities, our earnest protestations of being the most obedient humble servants of men, hardly our superiors, and sometimes of those, we least value, make us look very ridiculous and absurd. Pompous superscriptions were unknown to them till the decline of the empire. Turn over every leaf in *Virgil*, and altho' he was a very ceremonious

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nious gentleman, and perfectly acquainted with the minutest punctilio's of good breeding, yet, you will never find any of his letters directed *To the right honourable the Lord Consul, the most worshipful the Lord Prætor, the right reverend the Lord Pontiff,* or terms equivalent. The proper, family, and surname of the person, with that of his dignity annex'd, was thought sufficient; and *Cæsar*, sovereign of the *Roman* empire, the greatest man in the universe, wou'd have receiv'd a letter from a private citizen with no other direction, than *To Caius Julius Cæsar perpetual Dictator*. It shou'd not be forgotten, in honour to the *Romans*, that they did shew the same respect to age, as to rank and dignity; and that they had so great a reverence for their parents, that in their public baths, the use whereof was very frequent among them, a son never presum'd to appear, at the same time with his father.

But if superiors had so great a regard paid them by their inferiors, these, as has already been observ'd, were, in their turn, honour'd and caress'd. This happen'd, when any vacancy was to be fill'd up, which was very often; their highest offices being annual, that is, held only for a year. Then it was, that no arts were left untry'd by those *Patricians* and *Nobles*, who put up for places and employments; their very ambition render'd them affable, the desire of being great taught them to be complaisant, and pride itself was forced to put on the appearance of humility.

The *candidates* (for so they were call'd) were careful not to overlook the meanest citizen. They receiv'd, with all the openness and freedom imaginable, those that came to their *levee*; after which, they went about town, attended or followed by their relations, friends, and clients, soliciting both nobles and commonalty for their vote and interest. Men of the greatest credit and in

the highest places, accompany'd, upon these occasions, the candidate they favour'd the most; publicly declaring thereby, how acceptable his advancement wou'd be to them, and in order to recommend him to the choice and election of the people. The candidate himself had always, at his elbow, one or two servants,* whose business it was to acquaint him with the names of those he met; for the appellations of *Sir*, *Master*, and *Mylord*, not being in use at *Rome*, not to call a man, by his name, was reckon'd a breach of good manners. By such means as these, they not only obtain'd the greatest dignities, but enjoy'd them with honour and applause. Some of the first emperors, that they might not startle a people, as yet, not well us'd to the yoke, affected the same obsequious and courteous behaviour; especially *Augustus*, who refus'd with indignation the title of Lord that had been conferr'd upon him. All citizens were by him admitted without distinction at his levee, and he was so unwilling to be accosted with any manner of awe or fear, that, one day, smiling at an humble suppliant, that came trembling to him, he cou'd not help telling him, any one that saw him wou'd rather think he was presenting a piece of money to an elephant, than a petition to his prince.

I have hitherto been speaking of what was observ'd among men of different ranks; let us now consider, what was the behaviour of those who liv'd upon an equal foot. Their general rendezvous was the *forum*, a large open place, in the midst of the city, like the *piazza* of *St. Mark* at *Venice*. Here they met and convers'd, both upon public and private affairs; and in the first times of the common-wealth, when plainness and honesty

* *Nomenclatores.*

had not yet made room for grimace and dissimulation, it was here, that the old *Romans* gave one another sincere and hearty marks of their mutual friendship. But, in process of time, these generous professions, as is usual among all nations, degenerated into meer outward form and compliment. And yet, being of a lively disposition, and affecting much earnestness and fondness, as their countrymen, the present *Italians*, do at this day, they were so profuse of their kisses and embraces, even to those, with whom they had but a very slender acquaintance, that the emperor *Tiberius* thought himself oblig'd, to publish an edict against so troublesome a piece of civility: but this prohibition, in all likelihood, did not last long, since the poet *Martial*, who flourish'd under *Domitian*, that reign'd 44 years after the death of *Tiberius*, complains very much upon this account, of one *Posthumus*; which is to be suppos'd he wou'd not have done, had the edict afforded him any relief. It is not methinks unpleasant, to reflect upon the odd and uncommon incidents, that a law of this nature wou'd produce among us. An action against *Mr. Deputy Roughly* for hugging too closely *Sir John Nisby* Knt. and Alderman *Damages* exacted of *Andrew Mac-bullet*, a Lieutenant, lately return'd from *Gibraltar*, for assaulting, disordering and spoiling the *roupee* of *Alexander Soft*, *Esqr.* Ensign in the guards, under pretence of shewing his great joy, at the sight of the said *Alexander Soft*, after a seven years absence. An action of assault and battery against *Bellow Loud*, *Esqr.* for that he on the twelfth of *September* last, between the hours of six and seven in the afternoon, in the presence of a room-full of ladies, violently and with both his hands, did seize the head of *Frances Modely*, *Spinster*, and with his lips, during the space of two minutes, did kiss the said

said *Frances Modely*, to the great detriment of her reputation and white-wash.

But to leave this digression, for which I ask pardon of my readers, and return to the *Romans*, it may be observ'd, that they did use to send presents to their friends on their birth-day; to spend it with them in pleasure and rejoicings; to pay formal visits, make entertainments upon weddings and other such solemnities, drink to one another, and to absent friends, and the like.

That regard, which is due to the fair sex, was not omitted by the *Romans*. Ladies had the right of appearing at festivals, and solemn occasions, in a kind of open coach, drawn by mules; and of being carry'd in litters within the city-walls, a privilege, the men, during many ages, were depriv'd of. They had the best seats assign'd them, at all plays, shews, games, and other public places; and women, as well as men of quality, were honour'd, after their death, with a funeral oration, or panegyrical discourse, upon their virtues.





N^o 18. Saturday, March 4, 1737-8.

*Hic est pampineis viridis VESUVIUS umbris,
 Presserat hic madidos nobilis uva lacus.
 Hæc juga quàm Nisæ colles plus Bacchus amavit:
 Hoc nuper Satyri monte dedere choros.
 Hæc Veneris sedes, Lacedæmone gratior illi;
 Hic locus Herculeo nomine clarus erat.
 Cuneta jacent flammis & tristi mersa favillâ:
 Nec superi vellent hoc licuisse sibi.*

MARTIAL.

AMONG the several countries, which excite most an attentive traveller's curiosity, some are chiefly remarkable for the works of nature, others, for those of art. But, there are so many of both these kinds to be found in *Italy*, that it is very hard to determine, to which of the two one ought to give the preference. On one side, painting, statuary, architecture, both ancient and modern, display their beauties: On the other, varieties of pleasing prospects; hills cover'd, here, with vineyards, there, with snow; amazing falls of water; hot baths; sulphurous lakes and the like, attract the eye of the beholder, and command all his attention. But in this great variety of phænomena, which wou'd take up too much time to be mention'd here, none

are

are so surprizing as the several *volcano's*, or receptacles of subterraneous fires, especially that in the kingdom of *Naples*, and that in the neighbour island of *Sicily*: the first, enclos'd within mount *Vesuvius*, shall be the subject of this, the second, within mount *Etna*, of our next essay.

It is worth observing that there is no account given of Mount *Vesuvius's* casting flames, before the reign of the emperor *Titus*; which plainly shews that the enclos'd fire had been long gathering strength in the bowels of the earth, as several others do, without being perceiv'd, or else, that it was exhaled by some other vent. And indeed, ever since this hill has emitted flames, there are few or no fires to be seen in the *Æolian* now call'd the *Liparee* islands, which heretofore did use to burn very fiercely.

It was, as I have said, under the reign of *Titus*, that the fire, which had so long lain hid in this mountain, broke out with great vehemence, carrying with it vast quantities of stones and ashes, which intirely overwhelm'd and destroy'd the two cities *Hervelana* and *Pompea* (the remains whereof by digging pretty deep have been since found out and are to be seen to this day) and very much damag'd *Naples* itself. This strange accident occasion'd a loss long since deplor'd by the learned world, that of the famous *Pliny*, who being at that time commander of the *Roman* fleet at *Miseno*, with his usual curiosity, immediately set sail for the place where the flames appear'd, and order'd his ship to be brought as near as possible to it, that he might the better consider so new and so uncommon a sight. As he was at that time very much advanced in years, and besides, troubled with an asthma, he was suddenly seiz'd by these thick malignant sulphurous vapours that increas'd his distemper and were the cause of his death, which happen'd a few days after. Upon

no other ground than this, some have ventur'd to say, that the better to examine every thing, he had made those about him let him down with ropes into the hollow part of the hill, where he had been suffocated by the flames and burnt to ashes. This first eruption was, as has been seen, very considerable; after which the fires ceas'd for a great while, at least, I do not find upon record any other considerable eruption till the year 471. But this was so violent, that if we may credit common report, the cinders were carried as far as *Constantinople*, which prodigy was thought by superstitious minds to presage the destruction of the Empire, that happen'd immediately after, occasion'd, as every body knows, by that inundation of *Goths* which spread itself all over *Europe*.

The third remarkable eruption related by *Baronius* was in 681. He says, that several rivers of brimstone and bituminous matter issued from this fiery lake, and ran into the sea, the marks whereof are still to be seen. There have been since several other eruptions less considerable, but after a kind of cessation of some hundred years, they have been again renew'd with more fury than ever in the last century: First in 1631, next in 1638, and again in 1690, when there was such violent flames burst forth, such a prodigious quantity of stones, ashes and sulphurous matters was thrown out, together with such terrible earthquakes, that the cities of *Naples*, *Benevento*, and several others, were very nigh being intirely destroy'd. Besides, these noxious vapours infected the air, whereby a plague was caus'd, which lasted a great while, and spread to such a degree, that the dreadful effects of it were felt in the neighbourhood of *Rome*.

To this short history of the *Vesuvian* Volcano, I shall add a very exact account of it, as it was in the year 1701, when Mr. *Aldison* saw it, and I

shall chuse to give it in that celebrated Author's own words, with which I shall conclude this paper.

‘ THIS mountain stands at about six *English*
‘ miles distance from *Naples*, tho’ by reason of its
‘ height, it seems much nearer to those that sur-
‘ vey it from the Town. In our way to it we
‘ pass’d by what was one of those rivers of burning
‘ matter, that ran from it in a late eruption. This
‘ looks at a distance like a new plow’d land, but,
‘ as you come near it, you see nothing but a long
‘ heap of heavy disjointed clods lying one upon
‘ another. There are innumerable cavities and
‘ interstices among the several pieces, so that the
‘ surface is all broken and irregular. Sometimes
‘ a great fragment stands like a rock above the
‘ rest, sometimes the whole heap lies in a kind
‘ of channel, and in other places has nothing like
‘ banks to confine it, but rises four or five foot
‘ high in the open air, without spreading abroad
‘ on either side. This, I think, is a plain de-
‘ monstration that these rivers were not as they
‘ are usually represented, so many streams of run-
‘ ning matter; for how could a liquid, that lay
‘ hardening by degrees, settle in such a furrow’d
‘ uncompact surface? Were the river a confusion
‘ of never so many different bodies, if they had
‘ been all actually dissolv’d, they would at least
‘ have form’d one continu’d crust, as we see the
‘ *Scorium* of metals always gathers into a solid
‘ piece, let it be compounded of a thousand hete-
‘ rogeneous parts. I am apt to think therefore,
‘ that these huge unweildy lumps that now lye
‘ one upon another, as if thrown together by ac-
‘ cident, remain’d in the melted matter rigid and
‘ unliquify’d, floating in it like cakes of ice in a
‘ river; and that, as the fire and ferment gradu-
‘ ally abated, they adjusted themselves together
‘ as

‘ as well as their irregular figures wou’d permit,
 ‘ and by this means fell into such an interrupted
 ‘ disorderly heap, as we now find it. What was
 ‘ the melted matter lyes at the bottom out of sight.
 ‘ After having quitted the side of this long heap,
 ‘ which was once a stream of fire, we came to the
 ‘ roots of the mountain, and had a very trouble-
 ‘ some march to gain the top of it. It is cover’d
 ‘ on all sides with a kind of burnt earth, very dry,
 ‘ aud crumbled into powder, as if it had been ar-
 ‘ tificially sifted. It is very hot under the feet.
 ‘ and mix’d with several burnt stones and cakes of
 ‘ cinders, which have been thrown out at different
 ‘ times. A man sinks almost a foot in the earth,
 ‘ and generally loses half a step by sliding back-
 ‘ wards. When we had climb’d this mountain we
 ‘ discover’d the top of it to be a wide naked plain,
 ‘ smoaking with sulphur in several places, and
 ‘ probably undermin’d with fire, for we concluded
 ‘ it to be hollow by the sound it made under our
 ‘ feet. In the midst of this plain stands a high
 ‘ hill, in the shape of a sugar loaf, so very steep
 ‘ that there would be no mounting or descending
 ‘ it, were not it made up of such a loose crumbled
 ‘ earth as I have before described. The air of this
 ‘ place must be very much impregnated with
 ‘ salt-peter, as appears by the specks of it on the
 ‘ sides of the mountain, where one can scarce find
 ‘ a stone that has not the top white with it. After
 ‘ we had, with much ado, conquer’d this hill, we
 ‘ saw in the midst of it the present mouth of *Ves-
 ‘ uvio*, that goes shelving down on all sides ’till
 ‘ above a hundred yards deep, as near as we
 ‘ could guess, and has about three or four hun-
 ‘ dred in the diameter, for it seems a perfect
 ‘ round. This vast hollow is generally fill’d with
 ‘ smoak, but, by the advantage of a wind that
 ‘ blew for us, we had a very clear and distinct
 ‘ sight of it. The sides appear all over stain’d
 X 2 with

‘ with mixtures of white, green, red and yellow,
‘ and have several rocks standing out of them that
‘ look like pure brimstone. The bottom was
‘ entirely cover’d, and tho’ we look’d very nar-
‘ rowly we could see nothing like a hole in it;
‘ the smoak breaking through several impercepti-
‘ ble cracks in many places. The very middle
‘ was firm ground, when we saw it, as we con-
‘ cluded from the stones we flung upon it, and I
‘ question not but one might then have cross’d the
‘ bottom, and have gone up on the other side of
‘ it with very little danger, unless from some acci-
‘ dental breath of wind. In the late eruptions this
‘ great hollow was like a vast caldron fill’d with
‘ glowing and melted matter, which as it boil’d
‘ over in any part, ran down the sides of the moun-
‘ tain, and made five such rivers as that before-
‘ mention’d. In proportion as the heat slacken’d,
‘ this burning matter must have subsided within
‘ the bowels of the mountain, and as it sunk very
‘ leisurely had time to cake together, and form
‘ the bottom which covers the mouth of that
‘ dreadful vault that lyes underneath it. The
‘ next eruption or earthquake will probably break
‘ in pieces this false bottom, and quite change
‘ the present face of things.

‘ This whole mountain, shaped like a sugar-
‘ loaf, has been made at several times, by the
‘ prodigious quantities of earth and cinders, which
‘ have been flung up out of the mouth that lyes
‘ in the midst of them, so that it encreases in bulk
‘ at every eruption, the ashes still falling down
‘ the sides of it, like the sand in an hour-glass. A
‘ gentleman of *Naples* told me, that in his me-
‘ mory it had gain’d twenty foot in thickness, and
‘ I question not but in length of time it will cover
‘ the whole plain, and make one mountain with
‘ that on which it now stands.

‘ In those parts of the sea that are not far from
 ‘ the roots of this mountain, they find sometimes a
 ‘ very fragrant oil, which is sold dear, and makes
 ‘ a rich perfume. The surface of the sea is, for
 ‘ a little space cover’d with its bubbles during the
 ‘ time that it rises, which they skim off into their
 ‘ boats, and afterwards set a separating in pots
 ‘ and jars. They say its sources never run but in
 ‘ a calm warm weather. The agitations of the
 ‘ water perhaps hinder them from discovering it
 ‘ at other times.



N^o 19. *Saturday, March 11, 1737-8.*

——— *Horrificis juxtà tonat ÆTNA ruinis,
 Interdumque atram prorumpit ad æthera nubem,
 Turbine fumantem piceo & candente favillâ :
 Attollitque globos flammarum & sidera lambit :
 Interdum scopulos avulsaque viscera montis
 Erigit eructans, liquefactaque saxa subauras
 Cum gemitu glomerat, fundoque exæstuat imo.*

VIRGIL.

IF the account I gave in my last paper of mount
Vesuvius has not displeas'd my readers, I dare
 say the following essay upon mount *Etna* will
 not prove less satisfactory.

This mountain is at no great distance from *Ca-
 tana*, a town in *Sicily*, situate upon the eastern
 shore

shore of that island ; the soil and nature whereof has always been reckon'd the fittest of any to produce and nourish subterraneous fires. *Justin*, the Latin historian, a very credible witness in this case, that liv'd under the reign of *Antoninus Pius*, who succeeded *Adrian* in the year 138, expresses himself thus upon the matter. * “ The soil [of *Sicily*] “ is of a light crumbling nature, and the ground “ undermin'd throughout with caverns and great “ hollows, that lies open to the winds. Besides, it “ is said, that these cavities contain great quantities “ of sulphur, bitumen, and other combustible matter, by reason of which, the fire and wind struggling within the bowels of the earth, oftentimes, “ and in several places, throw up, sometimes flames, “ sometimes vapours, and at others, only smoak. “ Hence it is, that mount *Etna* still continues to “ burn after so many centuries ; and when thro' the “ openings of the cavities the wind blows harder “ than ordinary, heaps of sand and gravel are flung “ up into the air.

Mount *Etna* is much higher than *Vesuvio*, having, according to the dimensions of some mathematicians, ten or twelve miles perpendicular height ; the lower part of the mountain and surrounding vallies are exceedingly fruitful. This they have in common with all those lands which lie in the neighbourhood of volcanos ; these inward fires, when help'd by the moisture of frequent rains or the adjoining sea being productive of the greatest plenty. For this reason, the lower part of the mountain is planted with trees of all sorts, but towards the middle part, it is quite cover'd with cinders and stones, which are continually flung up by the eruption, and mix with the snow that falls from the summit of the mountain. At the top of this summit, is the largest

vent or opening, a vast hollow! offering to the eye a frightful precipice, the circumference whereof is about ten or twelve miles, and the diameter about three or four. This opening, decreases or increases, proportionably to the violence of the eruption. I have even been credibly inform'd that at times it has emitted neither fire nor smoak, but has been quite stop't up, as Mr. *Addison* says the mouth of *Vesuvius* was, when he saw it. There are in many places in the mountain several other openings, from which, in the day-time issues smoak, which, in the night appears as clear and bright as fire. On all sides are visible marks of streams of sulphurous matter, like unto melted metal, and the whole country thereabouts is full of burnt stones call'd *Charres* by the inhabitants, which, when the hill burns fiercely, are thrown several miles from it.

In the most ancient histories, mention is made of this fire, but without fixing the date of the first eruption; so, we may reasonably conclude it has been burning time out of mind; and yet, those stores of combustible matter are not exhausted. In the space of about 3000 years there have been no less than thirty considerable eruptions.

The first (that we have any knowledge of) happen'd at the time of the conquest of the golden fleece by the *Greeks*, 1200 years before the birth of Christ; the next, when *Aeneas* came to *Italy*, a little after the siege of *Troy*. There are three more reckon'd from the third *Olympiad* to *Ol.* 83 four very remarkable under the Consuls; one under *Julius Caesar*, one under *Caligula* in the year of our Lord 40; and another under *Charlemain* in the year 80. From the year 1160 to 1169 it broke out several times, and *Sicily* was continually agitated by earth-quakes, which caused the death of many thousand persons, and the ruin of several fine cities.

This Volcano began to rage again in the year 1284. From 1329 to 1353 it burnt almost continually

ually. It broke out again in 1408 but from 1444 to 1447 it never ceas'd, but blaz'd without interruption, as it did from 1536 to 1537. There was another dreadful eruption in 1633 which lasted till 1639 and was follow'd by that of mount *Vesuvius*, where every thing had been still and quiet for some time. After a short respite, it broke out more impetuously than ever in 1660; but the next eruption in 1669, being extremely remarkable in all its circumstances, may be look'd upon as one of the most memorable events that ever happen'd, and deserves as much to be recorded as any of those history has handed down to us. For this reason I hope the curious reader will not be displeas'd if I give him an exact account of it which I have taken from a very valuable *Italian* manuscript, the author of which was a gentleman of *Naples*, a very ingenious person and a good scholar, who was in *Sicily* at the very time, this accident happen'd, himself examin'd most of the particulars he relates, and had the rest immediately from those, who were eye-witnesses to the surprising and dreadful scene he describes.

‘ EIGHTEEN days before there was any suspicion
 • of an eruption, there were felt all over *Sicily*, but
 • especially near mount *Ætna*, violent earth-quakes,
 • accomp.ny'd with storms and lightnings, whereby
 • several stately buildings were levell'd with the
 • ground, and the town of *Nicolosi*, about half
 • a-mile distant from the mountain, was not only
 • quite overthrown, but the ruins of it were sunk a
 • considerable depth into the ground. It is worth
 • observing, that several persons, who were at sea,
 • between *Sicily* and *Calabria*, heard a strange
 • kind of noise under the water, which bubbled up
 • on all sides, notwithstanding the sea was calm, and
 • the sky very clear. About two months before,
 • *Vesuvio*, *Stronghilo*, and other neighbouring vol-
 • canos, burnt more fiercely than ordinary, casting
 • out

out flames and smoak with unusual violence, and in mount *Ætna* the covering form'd by an incrustation of cinders and pumice-stones, which lay over the mouth of the large opening broke with a horrid noise, and fell into that fathomless pit.

At last, the 11th of *March* 1669 the fire appear'd, not thro' the wide mouth, or any of the former openings, but it rent the earth at two miles distance from the main mountain, making its way thro' three hillocks, call'd *Malpasso*, *Montpeleri*, and *Fossiera*, which lie much lower than the large opening, about ten miles from the city of *Catana*, and are branches of mount *Nocillo*. There cannot be conceiv'd a more terrible sight than this was; the earth bursting open of a sudden, with roarings louder and more hideous than the united reports of a hundred thunder-claps! the whole horizon moving to and fro before one's eyes! flames borne aloft into the air, in the midst of which was seen a fountain of liquify'd metals and brimstone, spouting up like water-works fifteen or twenty foot high!

From the three hillocks issued forth three torrents, which having ran down the declivity soon united and form'd a vast river of fire, more terrible than that, celebrated by the poets, by the name of *Phlegeton*. It took its course towards *Catana*, which, as has been said, was about ten miles distance. In the first 24 hours, this fiery stream ran three miles, but afterwards, it went more slowly, insomuch that about the 5th of *April*, that is, 25 days after its beginning, it scarce got forwards above 150 120 or 100 paces a-day; and it continued thus, for 15 or 20 days, advancing every day slower and slower. The cause whereof might be this. The farther this mineral fluid substance proceed from the fountain-head, the colder and consequently the less liquid

‘ did it grow. Besides, the declivity not being so
‘ steep; the stream, beginning to run almost upon
‘ a level, cou’d not flow so rapidly as before. The
‘ breadth of it in several places was near three
‘ miles, in others less, in proportion to the difference
‘ of the ground it ran upon, and from time
‘ to time, it divided into several branches, which
‘ afterwards joyn’d again into one. This fiery inundation
‘ was ten or twelve foot above the surface of
‘ the earth, and went three or four foot deep beneath
‘ it. It is needless to add, that wherever it
‘ pass’d, every thing within the reach of it, was
‘ destroy’d. But what to some will appear very
‘ surprising is, that at a considerable distance from
‘ it, not only trees fell down, but houses too; the
‘ reason whereof is not very difficult to discover.
‘ For the earth being extraordinarily heated by this
‘ burning brimstone wherewith it was impregnated,
‘ this heat extending itself on all sides burnt up the
‘ roots of the trees; whereby wanting their proper
‘ hold, they must necessarily come to the ground.
‘ And in the same manner, the foundations of houses
‘ as well as the earth that surrounded them, being
‘ calcined and reduced to powder, the houses themselves
‘ must needs give way and sink under their
‘ own weight. Thus did this torrent roll on as far
‘ as *Catana*, where it fill’d up the *fosse*, or dry
‘ ditch, without penetrating into the town, or doing
‘ much damage in the neighbourhood of it; for,
‘ by a peculiar happiness in so bad an accident, at
‘ length, it took its course towards the sea (as if
‘ wearied with the ravage it had done) in which
‘ it mov’d in a visible stream for above a mile, making
‘ the water near it hiss and bubble in a surprising
‘ manner.

‘ Several had the curiosity to examine into the
‘ nature and substance of this liquid burning matter.
‘ It was found to be very heavy, and, when grown
‘ cold, very hard; in some places spongy, in others
‘ solid;

‘ solid ; and both in colour and figure very much
‘ resembling the dross of iron. The salts seem’d to
‘ be of the nature of vitriol, salt-petre, and salt-
‘ armoniac, with a considerable mixture of sulphur.
‘ It has been tried upon dogs and other animals,
‘ in order to see if it participated of the nature of
‘ arsenic, but it was not perceived that these crea-
‘ tures were in any pain, or had got any hurt by
‘ eating of it. Whilst this matter was flowing, one
‘ might see something like ashes, swimming on its
‘ surface, which, in length of time, being cool’d
‘ and congeal’d by the air form’d a very hard and
‘ thick crust, under which the liquid matter still
‘ continued to run. This crust was often broke by
‘ the force of the stream, as it was accidentally in-
‘ creas’d by the addition of new matter, the pieces
‘ whereof sunk down out of sight into the stream.
‘ On the surface swam a great quantity of large
‘ burnt stones, which the people of the country call
‘ *Sciarra* ; insomuch that when the stream, in its
‘ progress to the sea, fill’d the ditches and rose
‘ almost to the top of the wall of *Catana*, the in-
‘ habitants, at the sight of these vast stones moving
‘ towards them, and appearing several feet above
‘ the stream that bore them, were seiz’d with the
‘ utmost consternation, expecting immediate and
‘ unavoidable destruction. But when they saw ’em
‘ stop at the wall, o’erlook it, and as it were
‘ threaten those that were within it, without doing
‘ them any further damage, their fears by degrees
‘ abated and gave way to an agreeable surprisè.
‘ The priests and monks thought this a proper oc-
‘ casion, to work upon the superstition and credulity
‘ of the multitude, persuading them, that their de-
‘ liverance was the effect of a miracle obtain’d by
‘ the intercession of the Virgin *Mary*, patroness of
‘ the city. But the true reason was this ; the
‘ stream, as has been said, was not quite so high as
‘ the walls, but the stones, being lighter, swam

‘ above the surface, and exceeded, by several feet,
‘ the walls of the city, but did not go over it;
‘ they being themselves supported and kept a float,
‘ by the liquid matter in which they swam, which
‘ had not strength enough to beat down the city
‘ wall that was very thick, as it had done those of
‘ farms and country-houses. Thus, what may very
‘ often be accounted for by natural causes, is, thro’
‘ the ignorance of the people, and craft of the
‘ fryars and other such cheats, ascrib’d, for private
‘ ends, to the virgin or some other favourite saint.
‘ The whole country remain’d fill’d with these
‘ stones, and so many of them were carry’d into the
‘ sea as to encroach upon it, and form a kind of
‘ *mole* in several parts of the coast.

‘ In those places, where the liquid matter had
‘ had time to cool and the crust to harden, one
‘ might cross, with all manner of safety, over these
‘ stones, which made a sort of bridge. Never-
‘ theless, altho’ they appear’d cold on the outside;
‘ within they were burning hot, and continued so,
‘ unless they were loosened from the heap and set a
‘ cooling. Whilst the stream was flowing, they
‘ were not unlike shoals of ice, carry’d down a
‘ great river after a hard frost.

‘ They differ’d in weight, size, and hardness,
‘ and according, as they were more or less burnt.
‘ Some of my acquaintance told me they had put a
‘ stick into the stream which was burnt to a coal,
‘ but not reduced to ashes; the cause whereof I
‘ take to be the want of flame. Others have tried
‘ the same experiment upon an iron-rod; others
‘ upon a sword, which did not melt, but was bro-
‘ ken to pieces up to the hilt, which I look upon
‘ as an effect of saline and sulphurous particles,
‘ strongly penetrating the pores of the steel, and
‘ calcining it in an instant, as *aqua-fortis* does by
‘ degrees; and I do not doubt, had they repeated
‘ the experiment in another part of the stream,
‘ where

‘ where the heat was more intense, both steel and
 ‘ iron wou’d have been actually dissolv’d. Moreover,
 ‘ I have read a little treatise upon this subject,
 ‘ wherein it is asserted, that a bar of iron, flung
 ‘ into the stream, was seen to melt away like wax.

‘ The eruption lasted with the utmost violence,
 ‘ from the 11th of *March*, to the end of *May*,
 ‘ about which time it began to decrease by degrees,
 ‘ and towards the end of *June* it ceas’d intirely.
 ‘ Whilst it lasted; from the opening, whence ran
 ‘ the stream, incessantly issued a great flame, that
 ‘ ascended up to the skies amidst thick clouds* of
 ‘ smoak, which obscur’d the light of the Sun.
 ‘ Numbers of burning stones and ashes were flung
 ‘ out at the same time; and it is true, tho’ hardly
 ‘ credible, that some of the ashes were carry’d by
 ‘ the wind thirty or forty leagues; not only within
 ‘ the island, but over the streights into *Calabria*,
 ‘ and to several parts of the sea, where abundance
 ‘ of ships were cover’d with this odd kind of rain.
 ‘ It is easier to imagine than to express the horror,
 ‘ consternation, deaths, ruins and destruction, oc-
 ‘ casion’d by this dreadful eruption, this terrifying
 ‘ hurricane of fire. Eleven towns or large villages
 ‘ were overthrown in such a manner, that the
 ‘ remains of’em are scarce visible; and five and
 ‘ thirty more lie in ruins. *Syracusa* was almost
 ‘ totally destroy’d, and the earth-quake made the
 ‘ sea, to recoil with so much impetuosity, that vast
 ‘ numbers of fish were left upon the beach gasping
 ‘ for water; but the sea returning with additional
 ‘ strength overflow’d the walls of the city and almost
 ‘ cover’d the citadel.

‘ *Catana*’s escape from ruin in this eruption was
 ‘ but a short respite: for in 1693 *Sicily* was again
 ‘ afflicted with a terrible earthquake. The beau-

* In the Original, *whirl-winds*.

• tiful plantations and crops of corn in the valley
• of *Nora* were utterly spoilt; several cities were
• swallow'd up, instead of which appear'd vast
• lakes; *Syracusa* and *Messina* were very much da-
• mag'd: In a word, above fifty cities, towns or
• villages, were destroy'd; and one hundred and
• fifty thousand persons lost their lives.

• When first this earthquake was felt, it did no
• great harm; but two days after, at the same hour,
• it return'd with so much fury and violence, as to
• cause in less than a quarter of an hour those ter-
• rible effects above-mention'd. At *Catana*, out of
• two and twenty thousand inhabitants, not above
• two thousand escap'd, and those maim'd or
• wounded. The sea ran back above a mile, car-
• rying away eight feluccas, that were in the port.
• The city was almost intirely swallow'd up, and in
• its room remains a lake four miles round, full of
• sulphurous water, whence arises a very great
• stench. At *Arusta*, the calamity was heightened
• by an unhappy accident. An exhalation of sul-
• phur issuing from the earth, that had large cracks
• in above a thousand places; set fire to the maga-
• zines in the castle, consum'd all the stores and
• amunitions in it, blew up vast quantities of balls,
• bullets, bombs and granadoes, mix'd with the
• stones, out of the bulwarks, that were torn up
• by this violent explosion and being thrown a con-
• siderable distance into the sea; very much da-
• mag'd the galleys of *Malta*, that were riding in
• the harbour; and as the sea recoil'd back, all
• hands were set to work, lest they shou'd run a
• ground, as did a small vessel for want of timely
• assistance. In short, altho' this earthquake did
• most harm in *Sicily*, it was nevertheless felt, at
• the same time, at *Malta*, and even as far as
• *Africa* on one side; and on the other, all over
• *Catabria*, and up the *Adriatic* sea, or gulf of
• *Venice*. The volcano of *Etna* roar'd so loud as
• to

‘ to be heard at *Messina*. At *Malta*, the air
‘ appear’d all in fire and every where was diffus’d
‘ a strong smell of brimstone.

‘ I shall conclude with observing; that in the
‘ year which follow’d this event, earthquakes were
‘ felt all along the two coasts of the *Adriatic*,
‘ whereby was destroy’d the city of *Ragusa* [the
‘ seat of a small common-wealth]. And in the
‘ march of *Ancona*, an intire hill, * with woods,
‘ farms, and cottages upon it, was, by the earth-
‘ quake, torn from the ground it stood upon, and
‘ carried two miles into the sea (to compare small
‘ things with great) as a mine blows up a bastion.

(*) It is in the territory of *Fermo*, and call’d *Dallegrotte*.

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